DUN'S REVIEW and Modern Industry • December 1956

Almighty God . . .

as we stand here at this moment, my future associates in the Executive branch of Government join me in beseeching that Thou will make full and complete our dedication to the service of the people in this throng and their fellow citizens everywhere. Give us, we pray, the power to discern clearly right from wrong, and allow all our words and actions to be governed thereby and by the laws of this land. Especially we pray that our concern shall be for all the people, regardless of station, race or calling. May cooperation be permitted and be the mutual aim of those who, under the concepts of our Constitution, hold to differing political faiths, so that all may work for the good of our beloved country and Thy glory. Amen.

Prayer offered by President Eisenhower just before delivering his inaugural address, Washington, D.C., January 20, 1953

Prayers of Other Presidents

Many of our chief executives, like President Eisenhower, in their inaugural addresses or in some crises in their careers as leaders of the nation, have turned to the Almighty for guidance. Here are the words of some of our past Presidents as they have invoked God's blessing on their country and on their own labors:

Almighty God, we make our earnest prayer that Thou wilt keep these United States in Thy holy protection, that Thou wilt incline the hearts of the citizens to cultivate a spirit of subordination and obedience to government; to entertain a brotherly affection and love for one another and for their fellow citizens of the United States at large. And finally, that Thou wilt most graciously be pleased to dispose us all to do justice, to love mercy, and to demean ourselves with that charity, humility, and pacific temper of mind which were the characteristics of the Divine Author of our blessed religion, and without an humble imitation of Whose example in these things we can never hope to be a happy nation. Grant our supplication, we beseech Thee, through Jesus Christ our Lord. Amen.

GEORGE WASHINGTON, 1789

I now leave, not knowing when or whether ever I may return, with a task before me greater than that which rested on Washington. Without the assistance of that Divine Being Who ever attended him, I cannot succeed. With that assistance, I cannot fail. Trusting in Him Who can go with me, and remain with you, and be everywhere for good, let us confidently hope that all will yet be well.

ABRAHAM LINCOLN, 1861

And let us not trust to human effort alone, but humbly acknowledging the power and goodness of Almighty God, Who presides over the destiny of nations, and Who has at all times been revealed in our country's history, let us invoke His blessing upon our labors.

GROVER CLEVELAND, 1885

In the presence of my countrymen, mindful of the solemnity of this occasion, knowing what the task means and the responsibility which it involves, I beg your tolerance, your aid, and your cooperation. I ask the help of Almighty God in this service to my country to which you have called me.

HERBERT C. HOOVER, 1929

The Almighty God has blessed our land in many ways. He has given our people stout hearts and strong arms with which to strike mighty blows for freedom and truth. He has given to our country a faith which has become the hope of all peoples in an anguished world. So we pray to Him now for the vision to see our way clearly—to see the way that leads to a better life for ourselves and for all our fellow men—to the achievement of His will, to peace on earth.

FRANKLIN D. ROOSEVELT, 1945

Steadfast in our faith in the Almighty, we will advance toward a world where man's freedom is secure. To that end we will elevate our strength, our resources, and our firmness of resolve. With God's help, the future of mankind will be assured in a world of justice, harmony, and peace.

HARRY S. TRUMAN, 1949

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This Month's Cover

REPRINTS AVAILABLE

Especially designed and executed by the magazine's art director, Clarence Switzer, this month's cover can be readily detached by readers who wish to preserve it. Some additional covers, without any identifying lettering or credit, are available, and while the supply lasts the editors will be glad to provide an extra copy to those who request it.

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• As we approach 1957, we enter the open season for the statistical nimrods. There have been many optimistic and broad-gage shots at the short-term targets for business, and a few guarded high-velocity shots at the long-term objectives over the horizon of the next five to seven years. It's human nature to speculate on the future, and it's common sense to use a solid statistical and factual base for planning and scheduling.

However, statistics are tools, not crutches. They require intelligent handling backed by individual judgment. DUN'S REVIEW AND MODERN INDUSTRY offers a wide variety of statistics and interpretation in The Trend of Business, Compass Points Quarterly, Business Men's Expectations, The 14 Important Ratios, and the International Markets section. They are all prepared carefully from the best available sources. But Lorraine Carson, our Business Conditions Editor, would be the first to warn you that an index number won't take the place of your own appraisal of the situation. Profits, payrolls, and dividends are created by the dynamics of individual business judgment, not by actuarial averages. There's plenty of light but no power in statistics. You have to generate that yourself.

• During 1957 DR&MI will attempt to clarify the definitions of big business, and little business in its various categories. We've made a start with Richard Sanzo's articles on "middle business" management problems, especially as they apply to the 150,000 manufacturers and distributors in this classification. And it's time to stop making "little" business a political football, when one group defines "little" as anything less than a 250-employee business, while others, like Dun & Bradstreet, think of it in terms of millions of retailers who are self-employed with one or two people as extra help. The annual sales of

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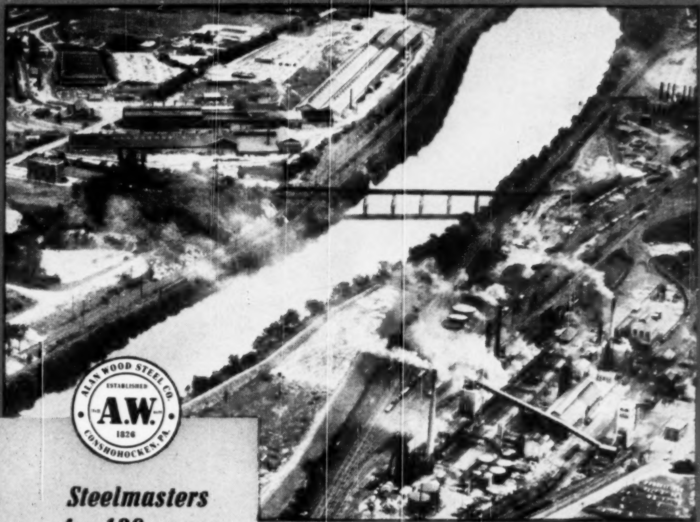

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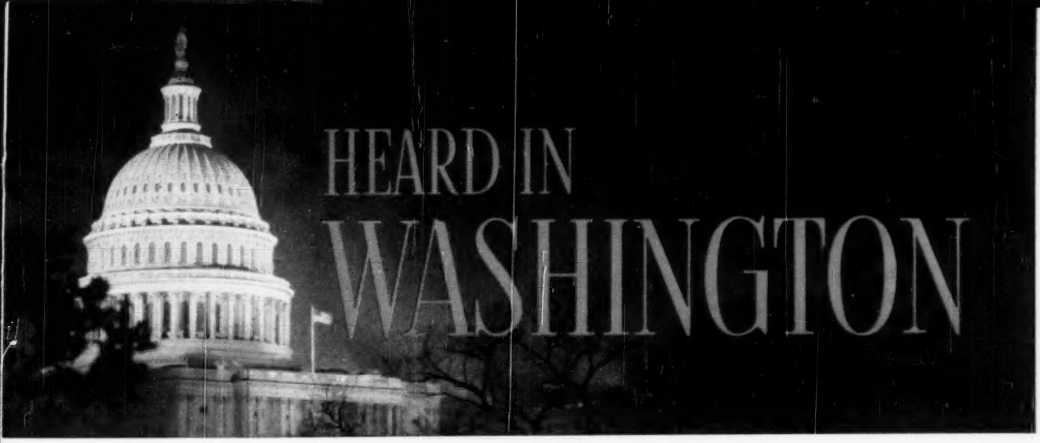

HEARD IN WASHINGTON

The effects President Eisenhower's reelection may have on business and the national economy are previewed in Paul Wooton's December report.

REELECTION of President Eisenhower relieves the economy of adjusting to the uncertainties that go with a change of Administration, but it is likely to stimulate expansion and intensify the problem of controlling inflation. There is reason to believe every effort will be made to encourage postponement of enough expansion to keep the demands for capital within sound limits.

Administration leaders are thankful that business did not slacken before the election, but they realize that the pace cannot continue to increase indefinitely. Knowing that the economy is vulnerable at the peak it now has attained, they will attempt to prevent over-extension, of plant and equipment as well as of credit.

Some decline in consumer demand is foreseen at a time when newly completed facilities are adding materially to production. While the great momentum that the economy has attained may carry it through 1957 on about the present level, officials know a shakedown is coming. By applying hard-headed business management they expect to minimize its impact. Every effort will be made to induce postponement of enough expansion to keep the demand for capital within sound limits.

But officials do not claim that the Administration can solve everything. Business executives, large and small, they say, must do their part.

George M. Humphrey, secretary of the treasury, says the Administration will "strive for minimal restrictions and controls"; "savings will hold their value"; there will be "no planned economy" and "less government in business."

"There is such a thing as overconfidence," warns Commerce Secretary Sinclair Weeks. "Housing and plant must not exceed legitimate demand. Speculation can be worse than lack of confidence."

But he believes that "unless we get impetuous and try to do everything at once, it is perfectly clear that normal growth, coupled with business confidence, will support a high level of activity for a long time."

That is also the way William McChesney Martin, Federal Reserve chairman, appraises the current situation. He is pleased by the fact that little effort was made to make "tight" money an issue in the campaign.

Washington notes

"Inflation" is a technical word that apparently does not impress the public. Officials are searching for some expression that will convey more vividly what a devastating force it is. In Germany, where everyone was impoverished by inflation, any action tending to reduce the value of the currency is now so unpopular that legislators and monetary authorities adhere rigidly to sound principles. If the public here could be similarly impressed, the danger of a "bust" could be discounted.

Secretary Humphrey, who is reminded every day of the unpopularity of taxes, is doing all he can to get inflation classified in the public mind as a "tax," one more onerous than any the people now have to pay.

The world situation makes it harder for the Administration to reduce expenditures, which adds to the difficulties of restraining inflation. One fear officials entertain is that the uncertain situation abroad may cause a financial crisis in Western Europe that will have repercussions here.

A relatively new factor is now contributing to a demand for capital funds exceeding the supply of money. Technological developments in agriculture mean that more money is required for things such as machinery, irrigation, and fertilizers. Formerly farmers borrowed principally to cover operating expenses and to purchase real estate.

Consumer credit is being approached from every angle in one of the more elaborate studies undertaken by the Federal Reserve. The project was ordered so that Congress and the President can have all the facts at their disposal in considering consumer credit problems.

When important decisions must be reviewed by a clearing agency, the real responsibility resides in that agency. In the case of Elliott Bell's proposed National Economic Council, opponents of the idea feel strongly that it would impair the independence of the Federal Reserve. The monetary authority has to take action that is unpopular. Had the Council been in existence in recent months, it is argued, discount policy would not have been approved. Even with an administration as anxious to hold the line against inflation as is the present one, there was outspoken objection to discount rate increases at the time they were authorized.

continued on page 8

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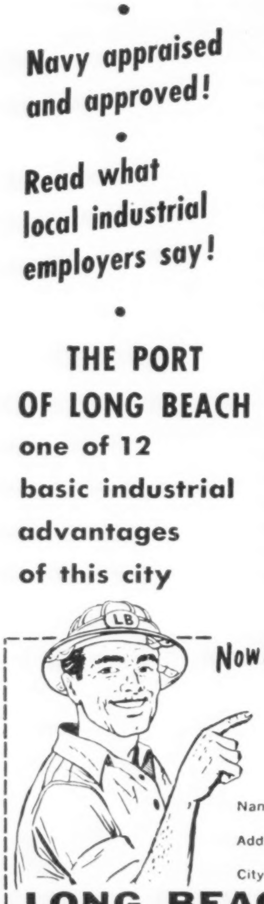

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Later the wisdom of the policy was admitted all around. The prevailing feeling is that the lending agencies, such as those dealing with housing, agriculture and small business, can work up their case together and lay their views before the Federal Reserve, where they are assured of thorough analysis and consideration.

Since the ratio of loans to deposits is some 15 per cent above that of 1950, present monetary policy is scheduled for attack as soon as the new Congress organizes. It is being charged that small business is suffering much more than is big business. Congress loves to pose as the champion of small business so long as ills can be laid to monetary policy. It is not interested in investigating the relative effect of wage increases on large and small businesses. With any investigation of interest rates will come consideration of changes in the tax laws to help small business. Preparations are being made by the Banking and Currency Committees and the Ways and Means Committee for an unusually active session at the forthcoming Congress.

While the output of electricity is included in the index of industrial production in most countries, the Federal Reserve is not, at this time, willing to follow that practice. It is putting out a new separate index of the production of electricity and gas by public utilities, which may be incorporated later in the general index of industrial production.

The new index will show the amounts of electricity and gas used in residences, in industries, and in commercial establishments, giving a picture of how use is spreading among the different classifications of consumers. Curiously enough, atomic energy plants constitute one of electricity's most important customers.

Utility output of electricity and gas has increased 120 per cent since 1947, while production from factories and mines, the components of the Federal Reserve index, has increased 45 per cent.

Federal Reserve statisticians are not ready yet to include in their index the physical volume of construction. They feel that it is so hard

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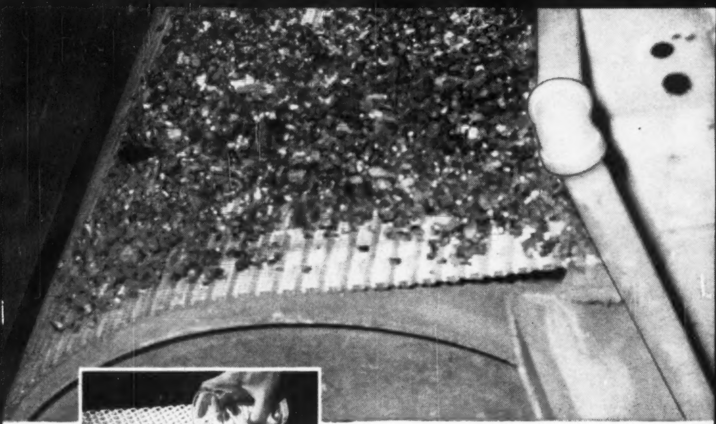

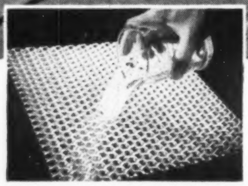

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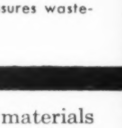

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

to measure that acceptable figures have not been developed.

The President, having established dominance over the stand-pat element in his party, is expected to push for freer trade. If competition is the life of trade within a country, he sees no reason why competition in international trade should not be helpful all around—so long as there are safeguards to keep alive industries essential to defense and to provide ample time for diversification in instances where American concerns cannot compete successfully with foreign producers. Competition is expected to reach a new degree of intensity during the next four years.

By reading between the lines of the outlook statements of the various government agencies, it can be deduced that most of the prognosticators feel it would be expecting too much to have 1957 business exceed the amazing record of 1956. The tone is much the same as it was a year ago, when no one predicted that 1956 would be a better year than 1955.

Demand for automobiles is being stimulated by the rapidity with which dispersal of population is taking place. For a long time suburban growth was on the fringe of cities within reach of public transportation. In recent years population has pushed farther out. This has made two cars to the family almost a necessity in many cases. And two salaries per household often make two cars possible.

While agreeing that housing should absorb its share of the strength in keeping total demands for credit in line with total supply, Albert M. Cole, administrator of the Housing and Home Finance Agency, says that under present regulatory policies, the construction rate of new homes in this calendar year is 17 per cent under that prevailing a year ago.

He thinks the restrictions have been uneven and unequal. "Those best able to pay the rising cost of money," he said, "stay in the market. But those unable to meet the compe-

tition are eventually frozen out."

The construction industry as a whole will show a 4 per cent higher rate in 1956 than in 1955, but the increase will have come as a result of demand for industrial expansion. He said there is an "impatient demand" on the part of American families for more housing. "Rising money rates and tightening of credit," says Cole, "are pressing heavily on home mortgage financing. We have reached a point where we must not risk a continued dropoff in the availability of home financing. With a new building season only a few months off, the Government must act affirmatively to see that housing production is protected."

Price supports for farm commodities continue at a high level. The total of the Federal investment in inventories owned outright, plus loans outstanding, will be $8.5 billion at the end of December, it is estimated. While the increase over 1955 will not be large, still it is an increase. Wheat, cotton and corn account for 85 per cent of the total. Tobacco adds 7 per cent, and the remainder is scattered over more than twenty commodities. In contrast with the general trend is the decline in inventories of dairy products. That investment has declined from nearly $600 million to $171 million. Additional borrowing authority probably will have to be asked for 1957.

When the highly conservative management of the Federal Reserve Bank of Minneapolis indulges in optimism, it has special significance in the opinion of officers of the system in Washington. The bank management emphasizes that "strength keynotes" the economy of that district, with the "over-all sales picture very strong"; ore shipments are at capacity, with borrowings at an all-time high, while general business activity continues to put pressure on prices. "Hustle and bustle" characterizes conditions in the mining regions.

Paul Wooton

WASHINGTON, D. C.

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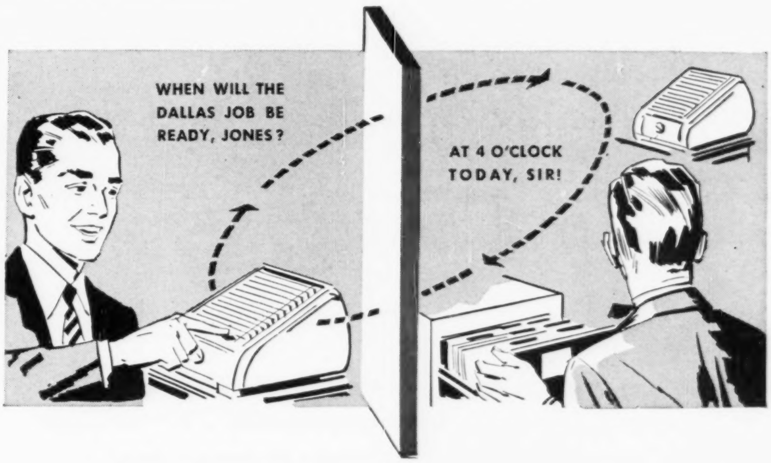

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Read about Elgin's "Practical Miniaturization". Our booklet tells how Elgin has helped others . . . how Elgin can help you. Write today for your copy.

ELGIN NATIONAL WATCH COMPANY

MICRONICS DIVISION • ELGIN, ILLINOIS

Lawlor Photograph from Devaney

Management views on questions of corporate Christmas giving, public relations, and commercial atomic power.

AS REPORTED TO GROVER AMEN

What do you feel is the best approach to the problem of corporate Christmas giving?

ROBERT C. HOOD
President, Ansul Chemical Co.

Christmas, in business as well as personal relationships, can be a time of sincere good will. We don't feel that imposing a strict ban on all giving is the best way to eliminate the abuses. We ban the lavish gift that can be construed as an attempt to gain influence. But we attempt to achieve a balance by three principal rules of thumb.

1. Each Christmas, contributions are made for the upkeep of a European or Korean war orphan for the following year. This subscription is made in the name of editors with whom we have been associated in the past year and is given to them as a Christmas present. We have received many letters from editors telling us that this form of Christmas present—making them foster parents of orphaned youngsters—is valued more highly than any other gift they receive at Christmas.

2. Christmas giving to customers is a personal matter, and we leave selection of the gift to our individual salesmen. Each is aware of our ban on lavish giving. But, if the salesman wants to provide some small gift, he does so with our approval.

3. Another Ansul approach to the gift problem is to remember customers on their birthdays. We believe almost everyone is remembered at Christmas time. But during the year, most companies do little, if anything, in the way of personal remembrances. Over the past ten years, our salesmen have determined the birthdates of hundreds of customers with whom they deal and have given the information to our headquarters in Marinette, Wis. We send one-pound cheesepacks to each with a birthday wish. During the last decade we have given away tons of the finest aged cheddar. We know it's

QUALITY

½ Ton Capacity

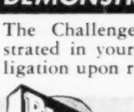
- Complete Bearing Control Throughout
- Self-Aligning Dual Floor Brakes Actuate on Uneven Floors
- Synchronized 12-volt Heavy Duty System
- Self-Contained Charger and Tapered Current Control

APPLICATIONS

- Hydraulic loading, unloading, stacking, moving, lifting any type of material . . . in large or small plants . . . in most every industry
- Transferring dies and stock, operating in narrow (28") aisles, stacking drums, crates, appliances, skids, pallets, etc.; Tailgate loading and unloading, loading and unloading freight cars, "handy man" operations.

DEMONSTRATION

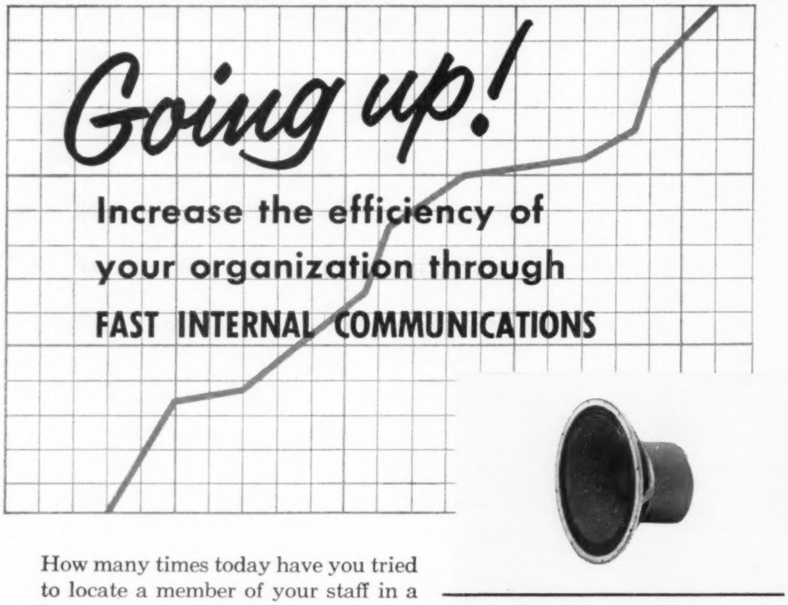
The Challenger can be demonstrated in your plant without obligation upon request.



Write for BIG JOE'S IBH* Handbook which shows how to solve your In-Between Handling Problems.

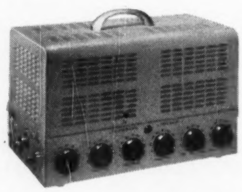
BIG JOE

Manufacturing Company
57 Ralph Hines Road
Wisconsin Dells, Wisconsin
(Copyright mark 1956)



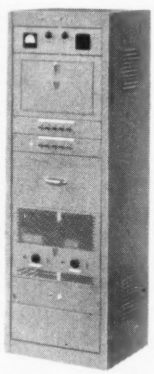
How many times today have you tried to locate a member of your staff in a hurry?

Everyone in your organization is within 5 seconds of your desk when you have a Stromberg-Carlson communications system.



The instant contact provided by voice paging means greater efficiency, because you get the answers you want when you want them.

It means substantial reductions in personnel expense, because no one need be sent on time-consuming, money-wasting "manhunts."



It means improved customer relations, because you get quick answers to their questions from the right people on your staff.

All-call alarm provides voice facilities for immediate warning and instructions in an emergency.

All this can be yours at *no capital expense*. Through our unique lease arrangement you may have anything from a simple telephone intercom to a complete public address, paging and music distribution system.

"There is nothing finer than a Stromberg-Carlson"

S-C

Mail this coupon today for a FREE SURVEY of your needs.

STROMBERG-CARLSON COMPANY

A DIVISION OF GENERAL DYNAMICS CORPORATION
1704 UNIVERSITY AVENUE • ROCHESTER 3, N. Y.

Company ....

Address ....

Person to see ....

appreciated because if some customer is inadvertently missed one year; or the parcel goes astray, we get letters asking, "Where's my cheese?" We get it on the road in the next mail.

H. W. HUBER
President, J. M. Huber Corporation

The question of Christmas gifts has been a recurring perplexity. We realize that the intentions of the givers are friendly and in the spirit of the occasion celebrated and that the spirit of the receiver is the same. But the relationship recognized by the gift is a business relationship; hence the gift has a business purpose.

Inasmuch as we insist that members of our organization make decisions on company affairs entirely on the basis of company interest, without regard to personal consideration, anything tending to detract from this objective is to be discouraged. Gifts to our company personnel could have that effect, and they could be detrimental to the interest of the giving company as well.

Aside from small tokens for advertising purposes, we have banned gifts. A letter is sent to our suppliers asking that no gifts of any kind be offered to our personnel, and our own personnel are directed to return any gifts they receive. Gifts by this company to the employees of other companies are also prohibited.

What are your industry's immediate goals regarding use of atomic energy?

W. DEE SHEPHERD
Sales Manager
Commercial Atomic Power
Westinghouse Electric Corporation

Conservative estimates indicate that there is 20 to 25 times as much potential energy in uranium and thorium as can be found in fossil fuels. It is important to realize that such a vast source

"People often are hoggish about paper towels"

WITHOUT realizing it they'll use from two to four single fold towels just for drying.
— wasting up to 40 inches of towelling.
But you can control this waste.
With savings up to 40%!
How?
*By installing WESTROLL TOWELS in West Micromatic Cabinets.**

PEOPLE quickly unroll as little or as much as they want. But without realizing it they take less. Averaging 17 inches of soft, absorbent WESTROLL.

Saves janitors' time, too.
— one filling of the tamper-proof cabinet equals four of a single fold towel dispenser.
— there's less litter to clean up.
And washrooms are cleaner, neater.

*Cabinets are loaned.

Thomas H. Burkheimer
BUILDING MANAGER
Tower Building
Seattle, Washington

"Our tenants use 50% less towels with Westroll"

"Our tenants were using three, four – and often more – fold paper towels. Now, with Westroll Towels in West's Micromatic Cabinets, they turn the small crank on the cabinet and use only half as many," says Mr. THOMAS H. BURKHEIMER, Manager of the Tower Building, *one of Seattle's major office buildings.*

"Not only is this a tremendous savings in money, but our janitors no longer lose time picking up discarded towels from the floor, many of which had hardly been used. Washroom litter has virtually disappeared."

Would similar results interest you? Send the coupon.

LARGEST COMPANY OF ITS KIND IN THE WORLD

WEST DISINFECTING Company

WEST DISINFECTING COMPANY, 42-16 West Street, Long Island City 1, N. Y.
Branches in principal cities • In Canada: 5621-23 Casgrain Ave., Montreal

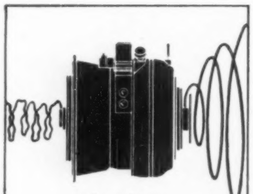
☐ Please send your free folder on cutting towel costs with Westroll.
☐ Please have a West representative telephone for an appointment.

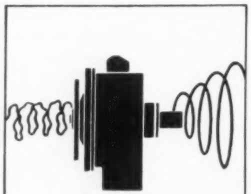
Name. . . . .

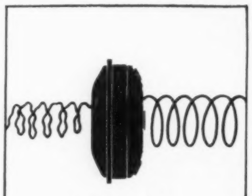
Position. . . . .

Mail this coupon with your letterhead to Dept. 1

converter or coupling? ...for unbiased* recommendations, consult Twin Disc!


Three-Stage Torque Converter


Single-Stage Torque Converter


Fluid Coupling

*Unbiased because Twin Disc—the world's largest manufacturer of both fluid and friction drives for industrial powered equipment—offers *a complete line* of fluid drives . . . torque converters (single-stage *or* three-stage) from 30 to 1000 hp . . . fluid couplings from ¾ to 850 hp . . . to meet virtually every heavy-duty requirement for fluid power transmission.

TWIN DISC CLUTCHES AND HYDRAULIC DRIVES

TWIN DISC
Friction Clutches and Fluid Drives

TWIN DISC CLUTCH COMPANY, Racine, Wisconsin • HYDRAULIC DIVISION, Rockford, Illinois
Branches or Sales Engineering Offices: Cleveland • Dallas • Detroit • Los Angeles • Newark • New Orleans • Tulsa

for energy is available. Each generation of the world's increasing population seeks to enjoy a higher standard of living, which requires more and more energy.

The work now going on in the nation's industrial and governmental establishments is showing how the atom can be effectively used to produce power. While the commercial atomic power industry will eventually spread-eagle all aspects of American industry, the electric utility industry is now pioneering an evaluation of commercial atomic power. By the year 1962, approximately 1 million kilowatts of electricity will be generated from presently planned projects. This will represent an expenditure of approximately $250 million by private industry.

But since the application of the atom to commercial power presents so large a potential block of energy, a careful technical evaluation must be made to define the most effective reactor types in which the uranium can be utilized.

What do you believe is our strongest challenge in the area of company public relations?

THOMAS J. DEEGAN, JR.
Vice President
New York Central Railroad

A basic public relations policy that can be applied to either a large corporation or a small business, to the administration of government, or to an individual is that facts and forthrightness must be the rule in all public relationships. No longer can business withdraw itself from public view; that being so, it should be prepared to state its position in a direct fashion. Since all human relationships are predicated on good faith, the corporate body must strive constantly to preserve good faith between itself and its various audiences.

I do not believe that a corporation can or should withhold what is clearly a matter of public interest, nor can it camouflage its intentions. The wise leaders of management today know all too well that public deception leads to early destruction.

NUMBER 5 OF A SERIES

How companies
with multi-plant operations
benefit by using

STANDARD OIL

INDUSTRIAL TECHNICAL SERVICE

There are 23 Standard Oil Division offices in the Mid-America area. Industrial lubrication specialists are on the staffs of each of these offices. Most of these men are college trained, have engineering degrees, and have graduated from Standard Oil's Sales Engineering School. All are experienced in providing technical assistance on industrial lubrication, metalworking, heating, automotive lubrication, in fact any industrial operation where products of petroleum are used.

Companies with multi-plant operation can get this technical service from Standard Oil industrial specialists at any of their plant locations.

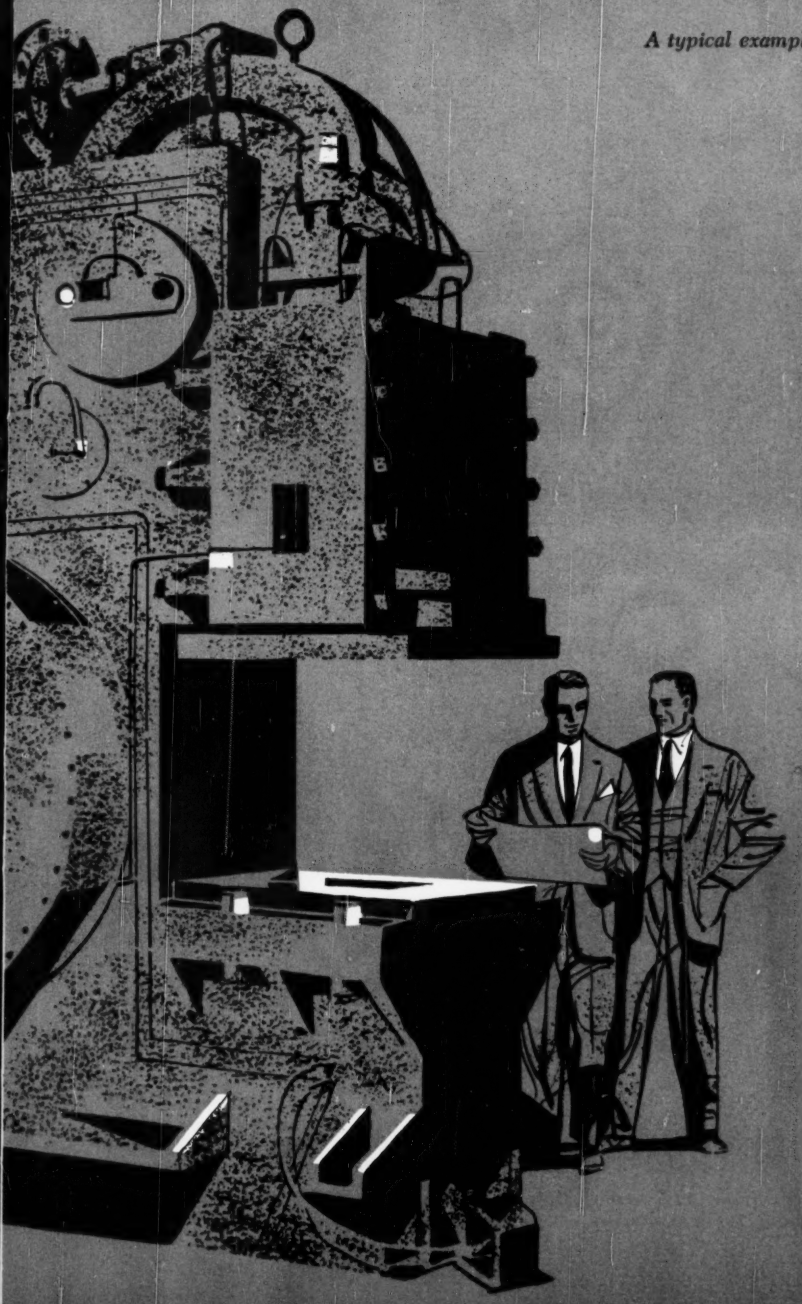
A typical example of Standard technical service.

General Electric has twelve manufacturing plants in three Midwest states served by Standard Oil. Each plant is only a few miles from a Standard Oil division office.

At one G-E plant in Michigan, Standard Oil man Joseph Keusch made a lubrication survey of nearly 200 pieces of machinery as the equipment was delivered *before the plant went into operation.* This survey was followed up with a plant inspection report identifying the machinery, the parts to be lubricated, the method of lubrication and the recommended lubricants to use.

These recommendations, plant management can depend upon. Joe Keusch is well qualified to give them. Joe has been doing industrial technical service work at Standard for nine years. He has an engineering degree from the University of Notre Dame and has graduated from the Standard Oil Sales Engineering School. And Joe is always nearby. The Standard Oil office where he headquarters is less than 30 miles from the G-E plant.

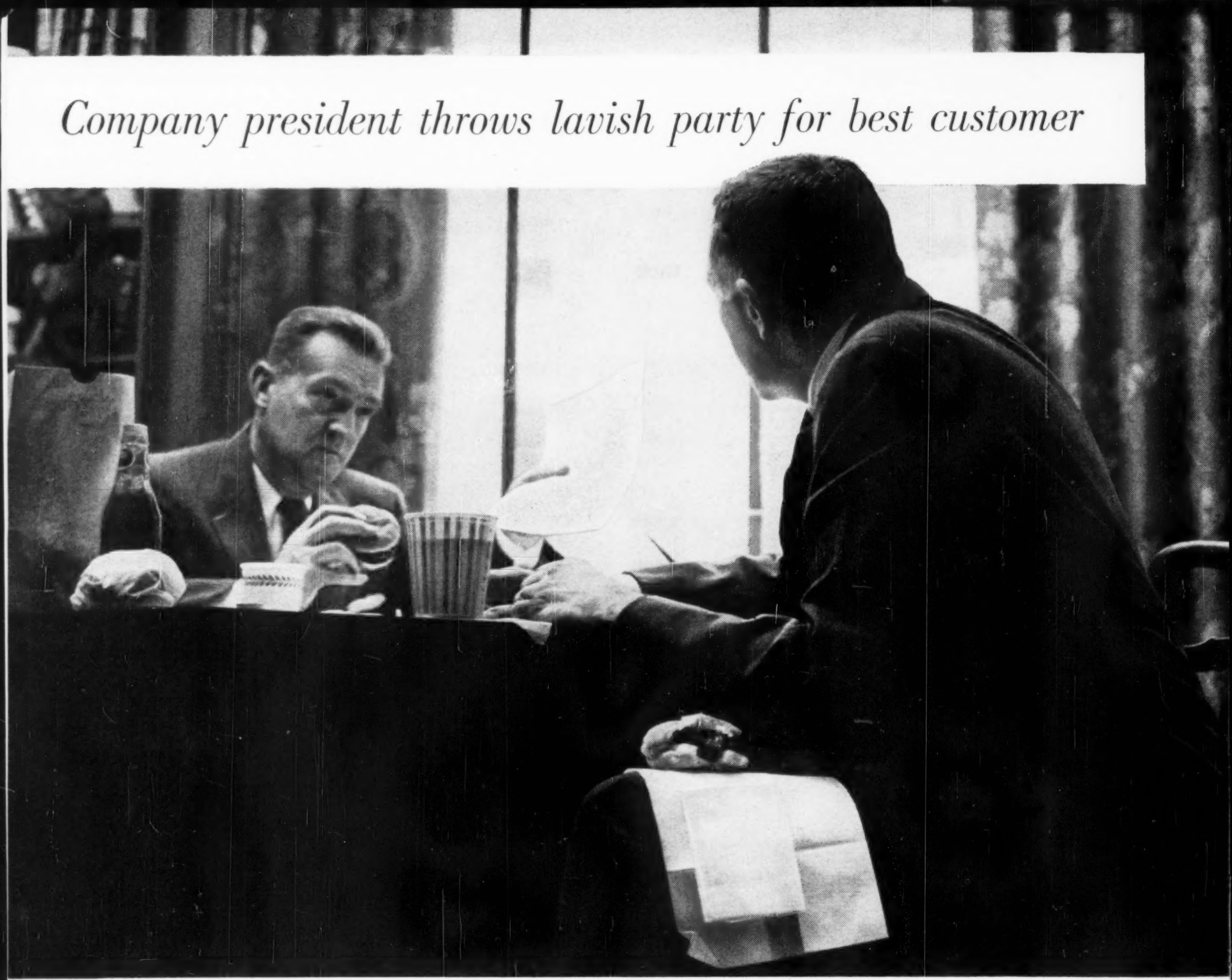
Men like Joe Keusch are on duty at all Standard Oil offices. They would like to serve you. Call the Standard Oil office nearest you for their help. Or write Standard Oil Company, 910 S. Michigan Ave., Chicago 80, Ill.



STANDARD

STANDARD OIL COMPANY
(Indiana)

Company president throws lavish party for best customer



"Sure we can give you 60-day delivery!" said the boss. "Let's have the details. We'll send out for lunch." He doesn't know it yet, but those hamburgers will cost him *plenty.*

When that order hits the shop, there won't be enough capacity to handle it. *Other* jobs will suffer . . . customers will get sore . . . overtime will kill off a big slice of potential profit.

Here's a case where the Keysort Plant Control Plan would have made the difference. With a weekly work-load summary of every department's manpower availability, the boss could have foreseen the problems of rush delivery. He would have known *in time* that to meet the deadline – and still ship to other customers – some jobs would have to be diverted or extra shifts added.

The Keysort Plant Control Plan can supply every fact you need for production and cost control. Plus the *on time,* accurate reports that provide a regular check on performance. Monthly, weekly, daily – as your needs require. At remarkably low cost.

The nearby McBee man has a presentation which will show you how it's done. Phone him, or write us.

McBEE KEYSORT®

Punched-card accounting for any business

Manufactured exclusively by **The McBee Company, Athens, Ohio** • Division of Royal McBee Corporation
Offices in principal cities • In Canada: The McBee Company, Ltd., 179 Bartley Drive, Toronto 16, Ontario

comment by

Annesta R. Gardner

When two can do better than one

The heat pump, solar energy, atomic radiation, antibiotics, and other modern "miracles" may seem a bit impractical as industrial tools when considered by themselves.

But they don't have to be applied that way. In some areas, for example, the high cost of electrical energy may put the heat pump far out of reach as the sole heating method for a house or business structure. But with solar energy supplying supplementary heat, the heat pump may be quite practical. (The reverse may be true, too: A heat pump may make a primary solar heating unit economical.)

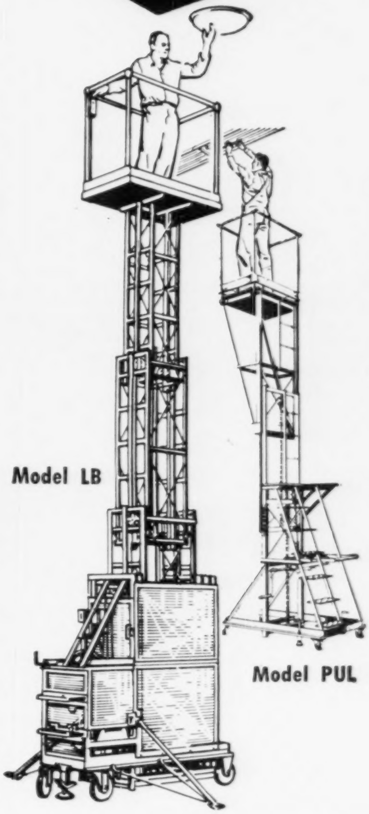
Use of atomic radiation in food processing is another example. The high level of radiation needed for complete preservation often causes undesirable taste, color, and odor changes. But, as C. F. Niven, Jr. of the American Meat Institute Foundation pointed out to a recent meeting of the Atomic Industrial Forum, radiation could become most useful to the food industry if properly applied.

For the present, he believes, radiation should be considered as a means of extending the shelf life of fresh meats, rather than of providing long-term preservation. Then, a low-level radiation treatment, accompanied by treatment with such "broad-spectrum" antibiotics as oxytetracycline, could be most useful. It should per-

Think you've got problems?

This king-sized slide rule is Bell Telephone Laboratories' answer to one problem in designing direct-current meters: establishing the correct damping characteristics. The problem can be set up with only two equations; but there are seven variables. Solving them by trial-and-error methods took far too long and charts were much too complicated. An electronic computer could do the job, but the problem isn't big enough and doesn't come up often enough to justify computer use. But this slide rule does the trick, quickly and efficiently. P. M. Mackoff of BTL has the answer in just a few minutes. Like many an "old fashioned" tool, such slide rules can still do yeoman service in industry. (For another example on production scheduling, see Oct. 1954, page 80.)

90% of overhead servicing can be done faster and safer with these ECONOMY Hi-Reach Telescopers!



Model LB
HI-Reach Telescopers
Four heights 20 ft. to 35 ft.
Standard Models from $1510.00 up.

Model PUL
Three Standard Models

No. 1 — Lift 10′ 9″ $370.00
No. 2 — Lift 11′ 9″ $390.00
No. 3 — Lift 15′ 0″ $400.00

Rubber tired wheels $10.00 extra
F.O.B. Chicago

Custom built Hi-Reach Telescopers up to 100 ft.

Write for complete catalogue

Headquarters for standard and special built overhead service lifters and material handling equipment since 1901

ECONOMY ENGINEERING CO.

4516 W. Lake St., Chicago 24, Ill.

FREE

NEW BOOKLET

DATAFAX

Quick
Economical
Error-Free
Transmission
of
All Data

STEWART SW WARNER ELECTRONICS

a Division of Stewart-Warner Corporation

SHOWING DETAILS OF

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ELECTRONIC TRANSMISSION OF ALL DATA

PHOTOS • MAPS • DRAWINGS • CHARTS • TYPED or WRITTEN INFORMATION

Write

Stewart-Warner Electronics
Department 45
1300 No. Kostner Ave.
Chicago 51, Illinois

mit prepackaging of fresh meats at the wholesale level—where it is most economical, and the level of radiation could be low enough to prevent undesirable flavor and odor changes.

The same kind of thinking applies to chemical processing. Radiation can promote chemical changes, just as heat does. But heat damages many materials, and a high level of radiation is likely to be both dangerous and costly. A combination of the two should permit a lower level of operation, with savings all the way around.

Promotion á l'Americaine

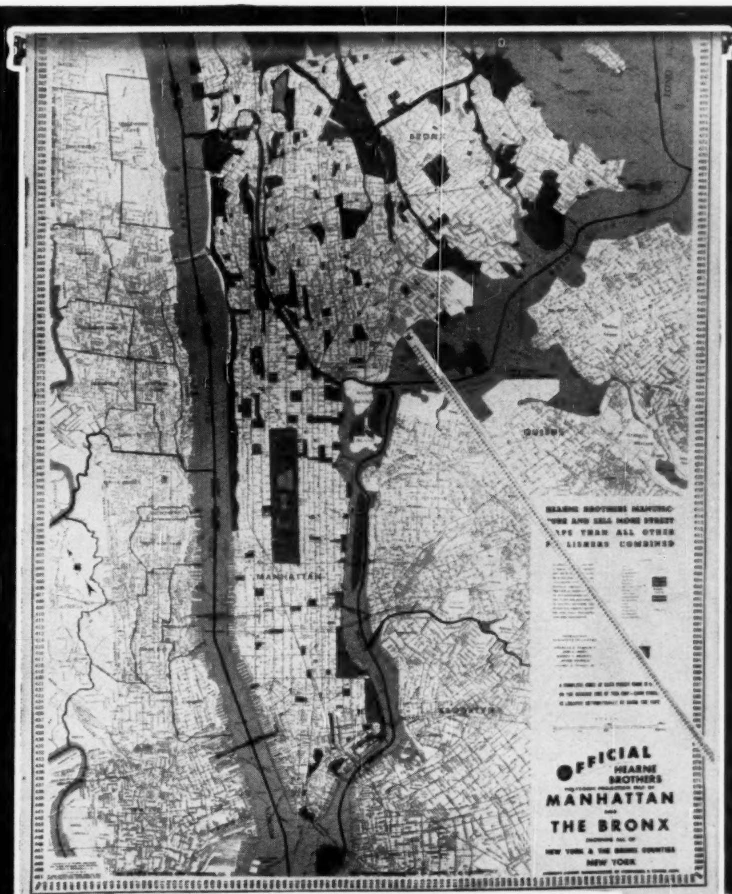
A bright idea, well executed, is bringing plenty of well-deserved publicity to Publicker Distillers Products, Inc. A leading supplier of industrial alcohol, Publicker also produces and markets the table variety, and is now introducing its American-made *Cavalier Vodka.*

From Publicker executive vice president John L. Leban came this announcement:

"Historical researchers have just unearthed incontrovertible evidence that vodka, as an alcoholic beverage, was first made in America. The Russians, contrary to popular opinion,

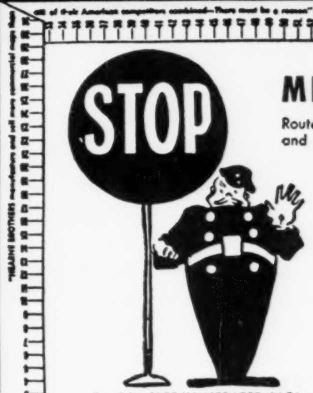
Recognize this one?

Does the Frank Lloyd Wright design on these Schumacher Taliesin fabrics and wallpaper look familiar? It should. The inspiration was industrial. We thought at first it was a printed circuit. Actually, Schumacher executives say, it's an adaptation of a floor plan for a trade show. Either way, it looks like a good bet for office as well as home decoration. Schumacher makes the fabrics in several color combinations, with wallpaper to match each one.



Similar maps of any American city, county or state.

Cut ⅓ in truck miles



MEANDERING DELIVERIES

Route your trucks the SHORTEST WAY every trip. The time and gas used by your drivers looking for unknown streets will buy a hundred maps like Hearne's Street Map of your city and county area.

Printed in six colors; street names are in big, black type, and instantly spotted with Hearne's patented, automatic Street Finder. (See border)

Over 100,000 truck owners use Hearne maps every day to give customers better service and cut truck mileage. Many users claim they save the cost of the map in a single day's use.

HEARNE BROTHERS

America's Largest Manufacturers of Commercial and School Maps

25th Floor National Bank Bldg., Detroit 26, Mich.

44" by 65" wall maps of any American city, $42.50 each F.O.B. your office.

44" by 65" wall maps of any American county, $42.50 each F.O.B. your office.

44" by 65" wall maps of any state in the Union, $42.50 each F.O.B. your office.

Send for FREE ILLUSTRATED CATALOG, containing seven large scale maps showing in color the area covered by our 400 large scale street maps. Absolutely no obligation, no salesman will call.

If in your operation you use salesmen, our city-county street maps might save your men considerable time. Test after test conclusively proves that this type personnel will make more calls more often if you make it convenient. Our city-county street maps locate instantly and mechanically for your salesmen, any street address in any American city. We will promptly mail one of your secretaries a brochure.

Horizon Unlimited

Remember when you were a kid—how the new model cars seemed to have everything? How you couldn't think of a thing to improve them? How you wondered "where can they go from here?" And each year you saw the automotive industry's answer—with exciting advances in styling, engineering, performance and economy.

Now another year has rolled around, and once again the new models seem to have everything. Yet today's achievements are simply the challenge, inspiration and promise of still better cars to come.

From its inception, Borg-Warner has worked hand in hand with the automotive industry, contributing its engineering skills and production facilities to many noteworthy accomplishments.

Today 19 of the 20 makes of cars use B-W parts such as automatic transmissions, torque converters, clutches, radiators, oil coolers, universal joints, timing chains, and many others. Back of each is the basic B-W idea: "Design it better—make it better." In this way, through many industries, Borg-Warner serves America every day.

Almost every American benefits every day from the products of

BORG-WARNER

ENGINEERING B-W PRODUCTION

BORG-WARNER CORPORATION, 310 S. MICHIGAN AVENUE, CHICAGO 4, ILLINOIS

actually secured the formula third hand, following a Viking foray to this country."

So far, so good. But many companies would let the idea drop there. The thing that makes this promotion effort noteworthy is that Publicker found a good story to back up its statement. Its public relations representatives haunted museums and scoured the literature. They came up with a scientific paper, prepared at a leading university, tracing the origins of alcoholic beverages in the New World and showing the similarity between vodka and an ancient Peruvian beverage called *chakta*.

Vodka, Publicker proudly claims, is as American as the potato, from which the Peruvian beverage was made. And the company has as fine a promotion idea as has come down the line in a long time.

P. S. *Cavalier Vodka* will be available in matched decanter gift sets with other Publicker products.

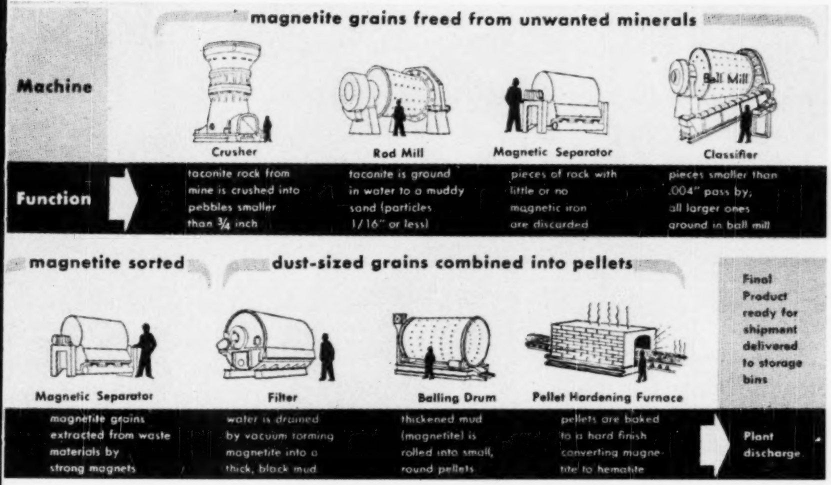
Watch those fires

Our bill for fire losses is likely to run over $1 billion this year. The National Board of Fire Underwriters' tabulation for the first nine months showed an increase of nearly 10 per cent over 1955—and the heating season, with its many special hazards, hadn't even begun.

Maybe this is a good time to check your plant again to make sure extinguishing systems are in good working condition, flammable materials are properly stored, welders are observing proper precautions, electrical wiring is in good condition, non-sparking equipment is used in potentially hazardous areas, and smoking rules are observed.

Atoms in everyday terms

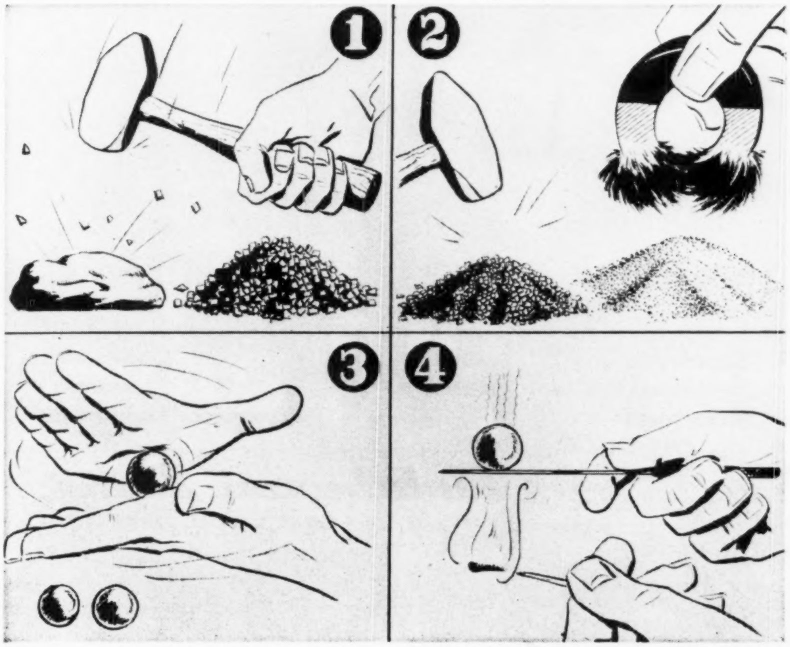
Atomic energy is brought down to plant level and explained in clear, interesting terms in a little booklet, *ABC's of Atomic Radiation*, prepared by the Nuclear Division of Glenn L. Martin (Baltimore) for its employees. It's well worth reading, and companies that use, or plan to use, radioactive materials might well follow Martin's example in preparing information for their own employees. Material of this type can do much to allay the fears and prevent the accidents that may so easily crop up (see July, page 35).



TACONITE:

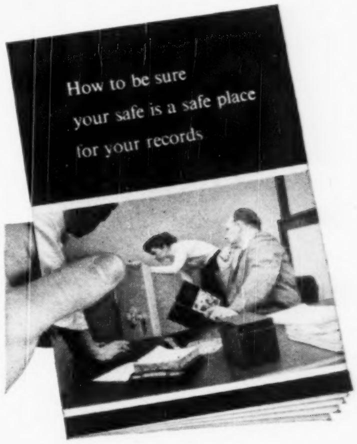
This is what it takes

Reserve Mining Company, jointly owned subsidiary of Armco and Republic Steel, is justifiably proud of its new plant and process for turning low-grade (25 per cent) taconite iron ore into useful high-grade (62.65 per cent) material. To show technical experts how the job is done, RMC engineers prepared detailed flow charts and the diagram pictured above. But what about the people who aren't technically trained? Taconite is important to them, too. The drawings below are Reserves' answer. They prove that a light, but still accurate, touch can bring even the most complex system down to the basic principles that everyone can understand. The sequence pictured shows: (1) crushing the ore; (2) separating the magnetic iron particles; (3) forming the particles into balls; (4) heat-hardening the balls so they can be handled easily.



FREE!

"How to be sure your safe is a safe place FOR YOUR RECORDS"



NEW 24-PAGE MOSLER BOOKLET TELLS YOU

- what makes some safes dangerous
- how much protection to expect from a fireproof building
- what records should get priority in a small safe
- what's needed to collect fully on fire insurance
- what special precautions to take with cash
- what to look for in buying a new safe and answers to dozens of other vital questions.

FREE! Mail Coupon Now!

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DEPT. DR-82, 320 Fifth Avenue, New York 1, N.Y.

Please send me FREE booklet described above.

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protects the records that protect your business—and at point of use!

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One of over 120 Remington Rand products and systems for the filing, finding, storing, housing, condensing, protecting, controlling or copying of *records*. For the complete SAFE-FILE story write for free booklet (SC685) to Remington Rand, Room 2203, 315 Fourth Avenue, New York 10.

by Remington Rand
DIVISION OF SPERRY RAND CORPORATION

THE TREND OF BUSINESS

▸ ***Sales Pause*** ▸ ***Backlogs Up*** ▸ ***Payrolls Expand*** ▸ ***Credit Tight***

HOW MUCH IMPORTANCE to attach to the scattered bits of evidence that business might be slackening in some major industries was a question for business analysts as 1956 drew to a booming completion.

In seven of the twelve Federal Reserve Districts, department store sales dropped below year-ago levels in late October and early November. New contracts for fabricated structural steel declined in September for the fifth consecutive month, fell 28 per cent below a year ago. Manufacturers' new order volume dropped off in September and was slightly below that in September 1955.

Sales at peak, but . . .

The decline in department store sales was inconclusive. Much of it was attributed to a slackness in apparel buying, presumably as a result of the unseasonably warm weather in some areas. According to spot reports from Dun & Bradstreet offices in 140 cities scattered across the country, total retail volume in October was about 2 per cent above a year ago, notwithstanding the somewhat slower buying in the latter two weeks.

Retailers, who built up their inventories in anticipation of an unusually busy Fall, were often disappointed when sales increased less than is usual for the season. It was hoped that the pace of retail volume would pick-up before Christmas. If this year's Christmas business does not surpass last year's peak, retailers may find their inventories uncomfortably large at the year-end.

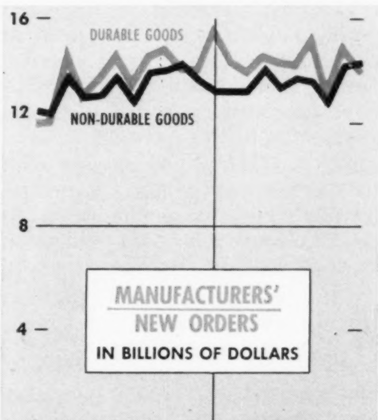
Although retail dollar volume was at an all-time high of $155 billion for the first ten months of 1956, the average rate of gain from a year ago receded to less than 3 per cent, compared with 4 per cent for the first six months, almost 7 per cent for the first three months.

It is interesting that the year-to-year rates of gain in disposable personal income dipped, too, from almost 8 per cent in the first quarter, to 6 per cent in the second quarter, and 5 per cent in the third quarter. When allowance is made for the rise in consumers' prices, both the unit volume of retail sales and the purchasing power of disposable income compare somewhat less favorably with last year's totals.

Although there seemed to be a growing certainty among consumers that prices were heading higher, only a small minority felt that they would be less well off next year and that 1957 might be a bad time to buy. The typical family felt confident about its future income and financial situation, according to the nation-wide survey of consumer expectations and buying plans conducted by the Survey Research Center of the University of Michigan in the early Fall.

While support for various kinds of household furnishings, hardware, and paints may derive from consumers' intentions to continue household repairs and improvements at 1956's record rate, the market for washing machines and stoves appeared to be shrinking, possibly because of a decline in home-purchase plans.

While manufacturers' orders for durable goods fell 6 per cent below a year ago in September, backlogs rose and were 20 per cent higher than September 1955. New orders for nondurables rose from last year.



New deal for dealers

Consumers planned to buy about as many refrigerators, television sets, and new cars in 1957 as they did this year, and thought they might increase their buying of used cars. The intentions to buy new cars were formulated before the introduction of the 1957 models. The enthusiastic response to the new models, if continued, may result in some upward revision of the earlier plans.

Both sales and profit margins among automobile dealers appeared to be rising in November, although still somewhat below a year ago. The Detroit automobile dealers surveyed by *The Wall Street Journal* in mid-November all claimed to be getting the full "suggested list price" for the new models.

Manufacturers' orders high

The slide in new contracts for fabricated structural steel brought new order volume more closely in line with shipments. Backlogs in early October were equivalent to almost a year's production at the average rate in the first nine months of 1956, assuring continued high output for most of 1957.

It is expected that the heavy steel used in building industrial plants and machinery will remain hard to get through most of 1957. Steel ingot production reached an all-time high in October, was sustained at peak rates in early November.

Although manufacturers' new orders for durable goods declined in September, backlogs edged upward,

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Edward T. Dickinson

EDWARD T. DICKINSON
COMMISSIONER OF COMMERCE

THE TREND OF

Qualified workers were apparently rather hard to find in 54 of the major employment centers this Fall. The increased use of overtime and out-of-area recruitment were sometimes fruitful ways of combating worker shortages. The data in the chart are from the Bureau of Employment Security's bi-monthly summary of the labor market in September. Employment conditions existing at the time of the survey were expected to continue to the end of 1956.

amounting to about four and one-half months' output at current rates. New orders for non-durable goods were steady, at a slightly higher level than a year ago.

Tool and die manufacturers expect that their sales for 1956 will be at an all-time record and think they will do as well in 1957. Although backlogs are not large, many tool and die producers expect to have all the orders they can handle. Many orders are arriving for 1958 retooling programs and most plants are currently working overtime.

The physical volume of industrial production reached a new peak in October, about 2 per cent above a year ago and exactly half again as large as the average for the years 1947 to 1949. The output of consumer durables edged upward with the expansion in automobile manufacturing. Factories producing metals and machinery scheduled production at peak rates.

Hiring active

Hovering near record levels, employment seemed bound not to falter for the rest of 1956. The usual seasonal declines in activity in such industries as construction and food processing may be offset to a large extent by increased hiring at the aircraft, automobile, fabricated metals, and electrical machinery plants.

Employers in most areas of the country expected to expand their payrolls in the closing months of

WEEKLY BUSINESS SIGNPOSTS

SELECTED BUSINESS INDICATORS	Latest Week*	Previous Week	Year Ago
Steel Ingot Production Ten Thousand Tons	246	247	242
Bituminous Coal Mined Hundred Thousand Tons	104	102	102
Automobile Production Thousand Cars and Trucks	166	153	207
Electric Power Output Ten Million KW Hours	116	115	111
Freight Carloadings Thousand Cars	764	773	767
Department Store Sales Index Number (1947–1949=100)	137	124	141
Wholesale Prices Index Number (1947–1949=100)	93	91	89
Bank Clearings Hundred Million Dollars	131	121	102
Money in Circulation Hundred Million Dollars	311	310	308
Business Failures Number of Failures	219	271	207

*Steel data for the fourth week of November; coal and sales for the second week; all others for third week.

*Sources: Amer. Iron & Steel Inst.; Bureau of Mines; *Automotive News;* Edison Elec. Inst.; Assn. of Amer. Railroads; Bureau of Labor Statistics; DUN & BRADSTREET, INC.

1956, according to the Bureau of Employment Security's latest survey of employer hiring plans. The traditional hiring of extra sales help for the holidays boosted employment in retail trade in November and early December.

The number of major employment areas with a "substantial labor surplus" was at 24 in September, two fewer than a year ago (chart on page 26). Of these 24 areas where unemployment was a major problem, seven were major automobile centers, five were dependent primarily on coal mining, four were textile centers, and six haven't an adequate industrial base to support a growing population all year-round. In the two remaining areas, the substantial unemployment was attributed to local cutbacks in the railroad equipment and farm machinery industries. Most of the serious unemployment resulted from long-term dislocations, not directly related to current business conditions.

There were about 66 million people employed in November, roughly 2 per cent more than a year ago. Unemployment, at about 2 million, was some 17 per cent less than last year and approaching the barest minimum.

Long view in building

While it was generally agreed that industrial and public construction would be sustained at extraordinarily high levels in 1957, appraisals of the home building outlook varied widely. The consensus among home builders was that housing starts in 1957 would drop about 10 per cent below 1956's volume, according to a survey by the National Association of Home Builders.

In contrast, Albert Cole, the Federal Housing Administrator, predicted that 1957 housing starts will continue at this year's rate of about 1.1 million units.

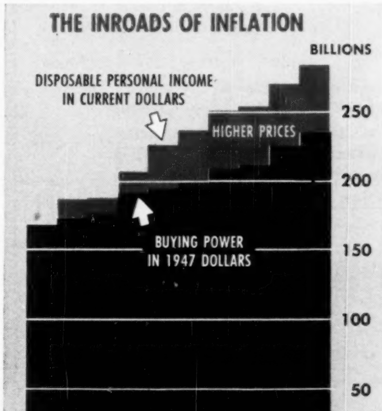
Still more optimistically, a huge rise in home building was forecast for the next 25 years by three economists, Dr. Leo Grebler, Dr. David Blank, and Dr. Louis Winnick. The three men prepared a study called "Capital Formation in Residential Real Estate" for the National Bureau of Economic Research and Columbia University's Institute for Urban Land Use and Housing Studies.

The first penetrating analysis of long-term trends in housing construction and its financing in the United States, the study provides some important clues to the long-term outlook.

It is believed by the three experts that in the quarter-century from 1950 to 1975 there will be more new homes built than in any other comparable period. Although an average of 1.1 million new homes were built each year between 1951 and 1955, the experts think that post-war building has not satisfied the demand for new homes.

These are some of the reasons advanced in favor of the expansion in home construction. The number of new households formed in the next 25 years is likely to be larger than in any previous period on record. Demolitions of existing dwellings to make way for highways and urban redevelopment is steadily increasing. Obsolescence and the enforcement of local building codes is resulting in a decrease in the existing stock of houses. Continued gains in real income may result in a further expansion in the demand for vacation houses, Summer homes, and week-

Almost steady increases in consumers' prices in the nine years since 1947 have cost consumers more than $287 billion in lost purchasing power, an amount greater than their entire disposable personal income for 1956.



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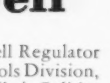

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For Additional Facts contact the nearest COMMERCIAL CREDIT CORPORATION office listed here. BALTIMORE 1; 200 W. Baltimore St. CHICAGO 6; 222 W. Adams St. LOS ANGELES 14; 722 S. Spring St. NEW YORK 17; 100 E. 42nd St. SAN FRANCISCO 6; 112 Pine St. Just say "Send me more information about the plan described in *Dun's Review & Modern Industry*."

COMMERCIAL CREDIT COMPANY'S subsidiaries, during the past year, advanced over one billion dollars to manufacturers and wholesalers to supplement their cash working capital. The total volume of its finance subsidiaries amounted to over three and one-half billion dollars.

Capital and Surplus over $200,000,000

end country places; according to the Census, the number of such dwellings doubled between 1940 and 1950.

Credit needs expanding

One of the most interesting ideas proposed is that while the real purchasing power of families has roughly doubled since 1890, the actual purchasing power spent for a dwelling dropped 40 per cent. The competition for the consumers dollar from such diversions as the automobile, restaurant meals, modern home appliances, and increased emphasis on vacations and entertainment were responsible for the decline in the relative importance of housing.

Whereas in 1891, about 8.2 per cent of physical production was put into housing, the proportion declined to 3.7 per cent in 1929, and to 2.7 per cent in 1950.

It is asserted that in the last few years consumers have apparently preferred to devote more of their real gains in income to better housing. The actual purchasing power invested in the average new house rose from $4,064 in 1953 to $4,174 in 1954, and jumped to $4,622 in 1955 (these figures are in terms of the purchasing power of the 1929 dollar).

The economists warn that sources of mortgage capital may be considerably harder to find than in past periods. It is thought that the search for new mortgage funds may intensify and the pressure for greater Government participation may increase.

Not many home builders expected any ease in the availability of mortgage loans in 1957. The Federal Reserve Board seemed determined to adhere to its tight credit policy, despite the pleas of many construction industry leaders.

Privately financed new dwelling units put in place in the first ten months of 1956 were valued at $11.3 billion, a drop of 10 per cent from the volume in the comparable period a year ago. Total new construction was valued at almost $37 billion, a gain of 3 per cent from last

This is a Business Conditions Staff Report, prepared by H. Lorraine Carson, Business Conditions Editor.

BUSINESS

year. Private non-residential building was up 16 per cent, public construction, 7 per cent.

$40 billion on the cuff

The volume of consumers' short and intermediate-term debt at the end of September passed the $40 billion mark for the first time in history. The month-to-month rise was smaller than last year, with repayments almost as large as new credit extensions.

The gain in total consumer credit outstanding in the first nine months of 1956 amounted to $3.8 billion; $221 million of this resulted from an increase in automobile installment paper. In the comparable period of 1955, total consumer credit increased more than $4 billion, with $3.5 billion of the expansion attributable to installment sales of automobiles.

Prices up again

Except for food, the prices paid by consumers for all of the major groups of goods and services purchased in daily living advanced in September. The decline in food prices was primarily seasonal, and due to be short-lived. Food prices may be expected to advance in the first four or five months of 1957, according to a recent forecast by the U. S. Department of Agriculture.

The Consumer Price Index, published by the Bureau of Labor Statistics, was at a peak of 117.1 (1947–1949=100), in September, nearly 2 per cent above a year ago. Rents, housing, and household operations costs were higher, and apparel, transportation, medical care, and recreation all were more expensive than in both a month ago and a year ago.

The sensitive wholesale index for the prices of 22 raw industrial commodities edged sidewise in October and early November, was about 9 per cent below the average in the years 1947–1949, but slightly above last year's level.

The more comprehensive index for the prices of hundreds of commodities at wholesale was rather stable in October and early November, running about 15 per cent above the 1947–1949 average level.

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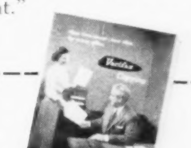

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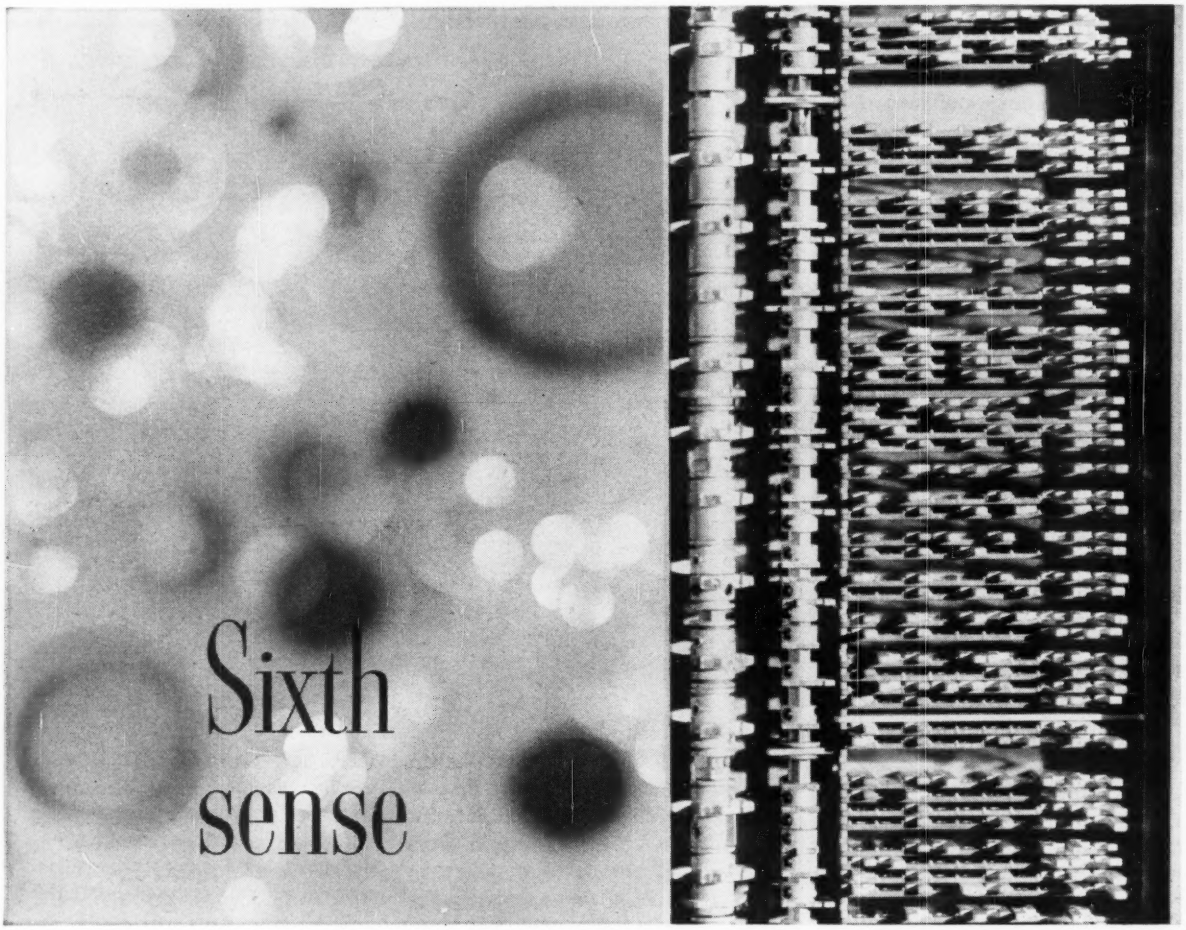

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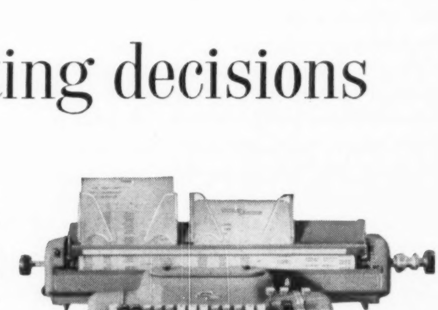

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BUSINESS FAILURES

RISING to the highest level in five months, business failures in October numbered 1,158. The toll was 24 per cent larger than in September, but smaller than in March and May of this year. Up 26 per cent from a year ago, more concerns failed than in any October since 1939, when there were 1,234.

The rate of failure resumed an upward trend in October, reaching a new post-war high of 53 for each 10,000 enterprises listed in the DUN & BRADSTREET *Reference Book*, as reflected in DUN'S FAILURE INDEX. The index extends monthly casualties to an annual basis and is adjusted for seasonal fluctuations. Failures occurred at a lower rate than the 67 for each 10,000 businesses in 1940 and the 73 in 1939.

Losses Heavier

The liabilities of the October failures increased 27 per cent to $50 million. Although this volume was exceeded in two earlier months this year, it was 44 per cent above liabilities in October, 1955. Failures of all sizes were more numerous than in the preceding month of last year. Very large casualties involving liabilities above $100,000 climbed 88 per cent above a year ago, while those of medium size, $5,000 to $25,000, rose 19 per cent and those under $5,000 were up 30 per cent.

Peak Retail Toll

All industry and trade groups had an increase in failures during the month. Failures in retailing and construction reached post-war peaks; within these two functions, all size classes showed an upturn from September.

The toll among both general builders and subcontractors climbed considerably, and the retail rise prevailed in all trades except general merchandise, which continued unchanged, and the automotive and drug lines which dipped slightly from last month.

More Manufacturers Succumb

Failures among lumber and building materials dealers doubled in October; in fact, these lines had the most casualties since early 1941. Manufacturing failures rose in all industries except stone, clay and glass, with a marked month-to-month increase in machinery and apparel.

Upward trends in failures from a year ago prevailed in most industries, but varied in degree. Commercial service casualties edged 1 per cent above 1955 and manufacturing rose a mild 10 per cent, whereas trade and construction exceeded their last year's levels by 32 to 34 per cent. General builders accounted for a larger portion of the construction increase. All retail trades suffered heavier casualties; the upturn was particularly sharp among apparel stores, very slight among food stores. On the other hand, the higher wholesale mortality was concentrated in the food line.

Regionally, failures rose in all areas except the Mountain States. More businesses succumbed in the West South Central States than in any month since 1940. Between September and October, the New England toll climbed by 49 per cent, largely in Massachusetts and Rhode Island, and the East South Central toll mounted by 45 per cent, mostly in Tennessee. While the over-all in-

THE FAILURE RECORD

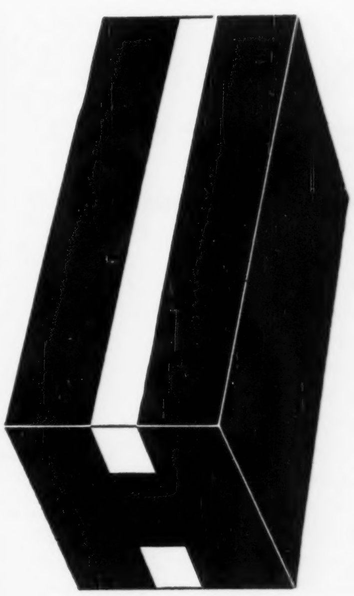
	Oct. 1956	Sept. 1956	Oct. 1955	P.C. Chg.†
DUN'S FAILURE INDEX*				
Unadjusted	50.6	44.2	41.9	+21
Adjusted, seasonally	53.3	51.4	44.6	+20
NUMBER OF FAILURES	1158	932	919	+26
NUMBER BY SIZE OF DEBT				
Under $5,000	188	127	145	+30
$5,000–$25,000	560	487	469	+19
$25,000–$100,000	303	245	248	+22
$100,000 and over	107	73	57	+88
NUMBER BY INDUSTRY GROUPS				
Manufacturing	198	140	180	+10
Wholesale Trade	112	85	85	+32
Retail Trade	584	489	437	+34
Construction	182	146	136	+34
Commercial Service	82	72	81	+ 1
	(*LIABILITIES in thousands*)			
CURRENT	$50,004	$39,313	$34,777	+44
TOTAL	50,343	39,820	34,777	+45

*Apparent annual failures per 10,000 listed enterprises, formerly called DUN'S INSOLVENCY INDEX.

†Per cent change, October 1956 from October 1955.

BUSINESS FAILURES *include those businesses that ceased operations following assignment or bankruptcy; ceased with loss to creditors after such actions as execution, foreclosure or attachment; voluntarily withdrew leaving unpaid obligations; were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily compromised with creditors out of court.*

CURRENT LIABILITIES, *as used in The Failure Record, have a special meaning; they include all accounts and notes payable and all obligations, whether in secured form or not, known to be held by banks, officers, affiliated companies, supplying companies, or the Government. They do not include long-term, publicly held obligations. Offsetting assets are not taken into account.*



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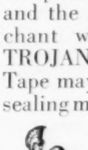

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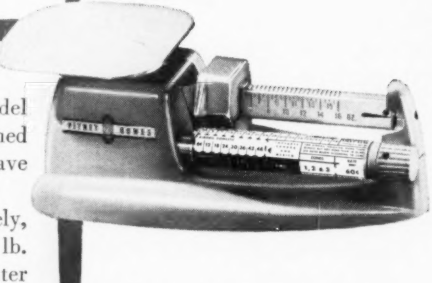

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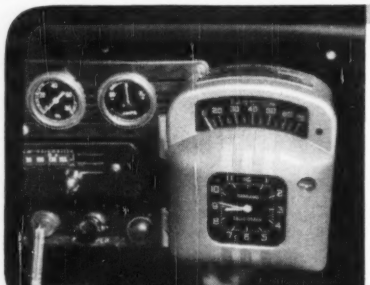

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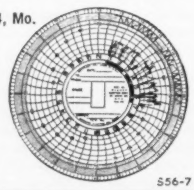

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crease in the Middle Atlantic States was a moderate 28 per cent, Pennsylvania casualties were twice as heavy as in the previous month. Likewise, Illinois failures doubled although the East North Central Region as a whole had a 26 per cent rise.

Business mortality exceeded the 1955 level in all areas; tolls in the South Atlantic and West South Central States rose very sharply from a year ago. California and Massachusetts, with slight dips from the previous October, were the only marked exceptions to the prevalent year-to-year upward trend.

Non-City Toll at Peak

The twenty-five largest cities reported 27 per cent more failures in October, and the balance of the country, 23 per cent. City tolls had been higher in some of the earlier months of 1956; however, non-metropolitan tolls reached a new post-war high. They were 31 per cent above a year ago as against the cities' 17 per cent rise. Chicago, Detroit, and Pittsburgh all had the most failures in over two years. In contrast, New York City casualties dipped below the October levels of both last year and 1954.

FAILURES BY DIVISIONS OF INDUSTRY

(Current liabilities in millions of dollars)	Number 10 Months		Liabilities 10 Months	
	1956	1955	1956	1955
MINING, MANUFACTURING....	1947	1815	157.7	131.3
Mining—Coal, Oil, Misc......	33	44	7.3	4.3
Food and Kindred Products..	161	139	9.1	12.6
Textile Products, Apparel.....	479	416	30.1	20.9
Lumber, Lumber Products....	332	264	20.9	11.4
Paper, Printing, Publishing....	106	95	7.0	3.8
Chemicals, Allied Products...	53	43	12.3	3.2
Leather, Leather Products....	71	75	4.2	4.3
Stone, Clay, Glass Products...	31	42	4.7	1.7
Iron, Steel and Products......	111	98	10.4	10.7
Machinery..................	232	235	27.8	32.8
Transportation Equipment....	47	40	3.3	3.9
Miscellaneous...............	291	324	20.7	21.8
WHOLESALE TRADE...........	1041	976	65.3	41.7
Food and Farm Products.....	248	231	11.0	10.3
Apparel....................	45	55	2.1	2.0
Dry Goods..................	40	41	1.3	1.4
Lumber, Bldg. Mats, Hdwre...	132	111	17.1	5.5
Chemicals and Drugs........	39	32	1.2	1.1
Motor Vehicles, Equipment...	58	60	3.4	1.7
Miscellaneous...............	479	446	29.2	19.8
RETAIL TRADE..............	5387	4473	133.6	99.2
Food and Liquor............	914	885	15.3	15.5
General Merchandise........	237	162	8.5	4.5
Apparel and Accessories.....	1028	718	26.3	14.1
Furniture, Furnishings.......	665	616	22.3	17.5
Lumber, Bldg. Mats, Hdwre...	332	269	9.7	8.6
Automotive Group..........	600	440	18.6	9.8
Eating, Drinking Places......	966	807	19.8	16.8
Drug Stores................	137	104	2.9	2.2
Miscellaneous...............	508	472	10.1	9.3
CONSTRUCTION..............	1480	1135	81.6	66.1
General Bldg. Contractors....	560	361	44.7	31.1
Building Subcontractors......	843	712	32.4	27.7
Other Contractors...........	77	62	4.4	7.3
COMMERCIAL SERVICE........	850	717	34.2	27.6
TOTAL UNITED STATES........	10705	9116	472.5	365.0

Liabilities are rounded to the nearest million; they do not necessarily add to totals.

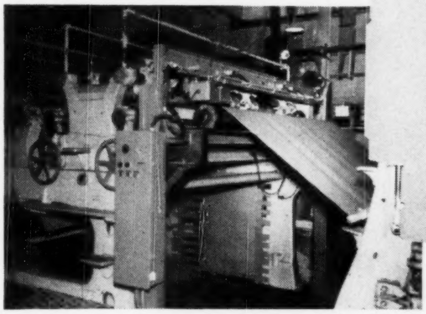
Beta Gauge measurement, control and recording units.

This nuclear "mike" measures and controls moving sheet materials

Though it never touches the material, Curtiss-Wright's Nuclear Measurement System measures or weighs plastics, metals, paper, textiles, etc. far more accurately than has ever been possible before . . . and does it *during production*.

A radiation source no larger than a grain of salt transmits beta rays through the sheet which "read" its precise thickness . . . trigger corrective measures . . . provide a continuous record of product uniformity.

Curtiss-Wright Nuclear Measurement Systems are adaptable to many industries. Curtiss-Wright engineering is ready to plan a system which meets *your* control needs. Write for a more complete story.



Nuclear system measures materials during production, sounds alarm at any deviation from specifications, eliminates stoppages.

Systems Frieseke & Hoepfner

***Nuclear Measurement* by**

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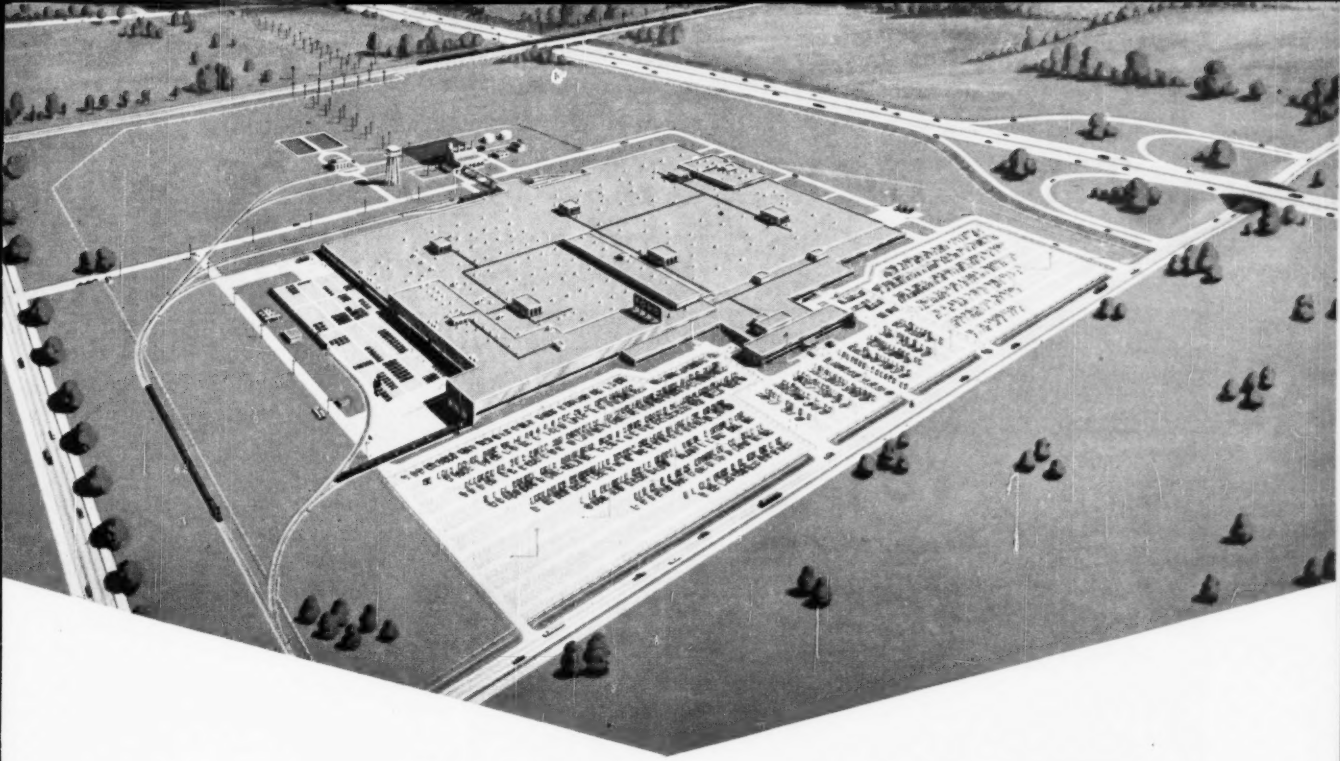
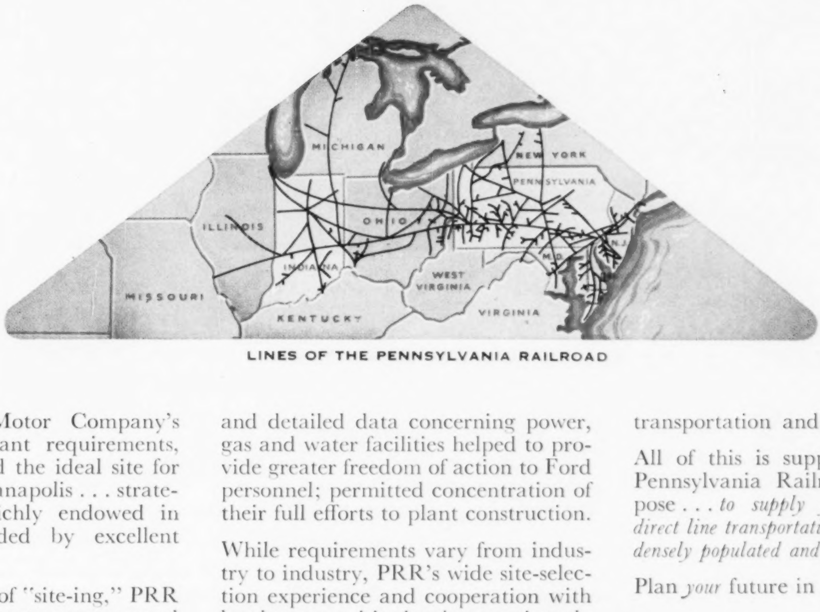
1957 BUSINESS FORECASTS

	OVER-ALL	PRODUCTION	SALES
Value Line Investment Survey	A slowdown in economic activity is expected soon after the turn of the year. Gross national product might reach $422 billion in the first quarter, but will not advance for the rest of the year. The average GNP for 1957 will be $416 billion.	During the first quarter record output of steel, automobiles, and capital goods is probable, but a slackening in production will follow. Steel output will reach 110 million tons for the year, 3.5 per cent below 1956.	Consumer expenditures will expand 2.6 per cent in the first half; for the whole year they will exceed the 1956 level by 2.3 per cent. Orders for heavy steel supplies will be high, but bookings in lighter steel will slacken.
Joint Congressional Economic Committee (Dr. Grover W. Ensley)	Gross national product for 1956 as a whole will probably range from $430–$440 billion. Federal Government outlays will climb by $2 to $3 billion, with increased spending for the military and highway and school construction accounting for the rise.	A moderate rise in industrial output will likely occur. Business investment in new plants and equipment will climb through the first half of the year and then level off. Inventories will be watched closely. Manufacturers' prices will continue to rise.	Gains in consumer spending may range from $14 to $18 billion. Savings will be somewhat smaller than the 7.4 per cent of disposable personal income prevailing in 1956. There will be no reduction in present tax rates.
F. W. Dodge Corp. (Symposium of 221 economists)	Gross national product is expected to reach $420 billion at the end of the year. Inflation will account for the major part of new gains in business activity. Consumer and wholesale prices and personal incomes are likely to edge up.	Industrial output will expand slightly. Estimates for plant and equipment expenditures range from $35 to $40 billion, as compared with $35 billion in 1956. Construction activity is expected to remain at the 1956 level.	New price increases as well as a rise in physical volume will moderately boost retail trade. The Bureau of Labor Statistics Consumer Price Index is expected to rise to 119 at the end of the year from the 117.5 of the last quarter of 1956.
Business Advisory Council (Department of Commerce)	An easing of consumer credit by the Federal Government will stimulate business activity. Many consumers will have paid off installment purchases, and will undertake new ones. There will be no need for controls on consumer credit.	Increased sales will induce manufacturers to step up production. Spending for the expansion of facilities and new equipment will rise to the highest rate of any year, with the most noticeable increases in steel and utilities.	Consumer spending will increase, with a considerable gain in the buying of automobiles. Manufacturers' sales of electrical machinery, food, farm implements, steel and transportation and utility equipment will expand most noticeably.
Todd & Draper Corp., Management Consultants	Business activity will advance, but the rate of increase will be more moderate than the rise from 1955 to 1956. Most segments of the economy will share in the increase. Federal and local government expenditures will rise moderately.	Output, as measured by the Federal Reserve Board, will expand 3.5 per cent with durable goods rising more noticeably than nondurable. Automotive production will surge to 6.8 million, an increase of 13 per cent over the estimated 1956 total.	Sparked by a considerable rise in the buying of automobiles, consumer spending will increase. Sales of home furnishings are expected to climb about 3 per cent. Textile mill sales will increase 4.4 per cent. Disposable income will rise 2 per cent.



Foresight by FORD Plant Site by PRR



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Skilled in the ways of "site-ing," PRR industrial development experts paved the way for Ford. Property and elevation surveys, soil analysis, labor studies and detailed data concerning power, gas and water facilities helped to provide greater freedom of action to Ford personnel; permitted concentration of their full efforts to plant construction.

While requirements vary from industry to industry, PRR's wide site-selection experience and cooperation with local communities has been eminently successful in locating plants at highly concentrated centers of resources, transportation and population.

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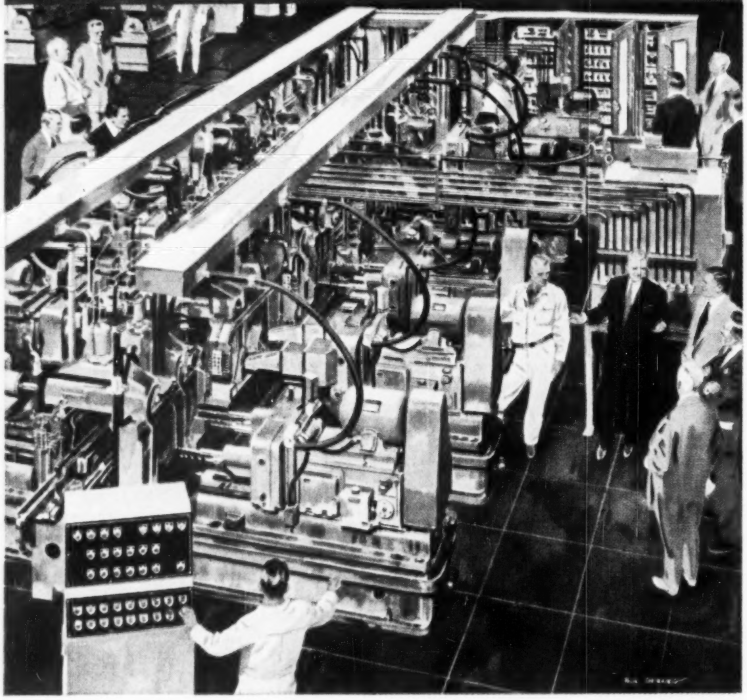
Again and Again and Again

THE CHOICE OF THE LEADERS
THE MARK OF BETTER MACHINES

W. F. & John Barnes, a leading builder of machine tools and automation installations, standardizes on the use of Cutler-Hammer motor control equipment



Barnes Multiple Station "Progress-Thru" Machine which performs a total of 54 operations on automotive cylinder heads in a continuous automatic cycle. Cutler-Hammer Three-Star Motor Control and Heavy Duty Oil-Tight Pushbuttons are standard original equipment.

The W. F. & John Barnes Company, Rockford, Illinois, has designed and built highly specialized mechanical, electrical and hydraulic equipment and machines for more than 80 years. Their unusually competent Electrical Division has repeatedly won distinction in the custom designing and building of complex electrical control systems, particularly in advanced automation engineering. Their choice of Cutler-Hammer Three-Star Motor Control and Cutler-Hammer Heavy Duty Oil-Tight Pushbuttons, in their own words, "simply reflects our conviction that these are the very best available."

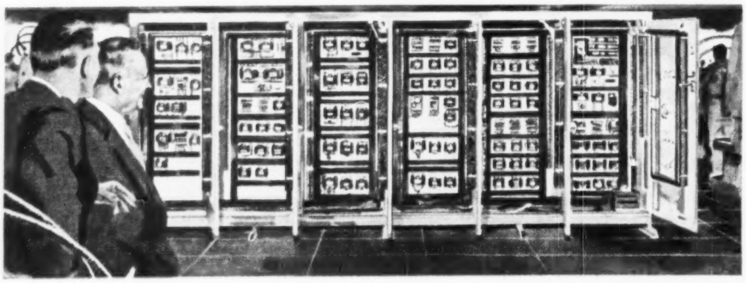
Cutler-Hammer Three-Star Motor Control and Cutler-Hammer Heavy Duty Oil-Tight Pushbuttons are the decided preference of able engineers whenever selection is determined by careful comparison. To be sure, you too should standardize on Cutler-Hammer . . . the choice of the leaders, the mark of better machines.

CUTLER-HAMMER, Inc., 1436 St. Paul Ave., Milwaukee 1, Wis. *Associate:* Canadian Cutler-Hammer, Ltd., Toronto.

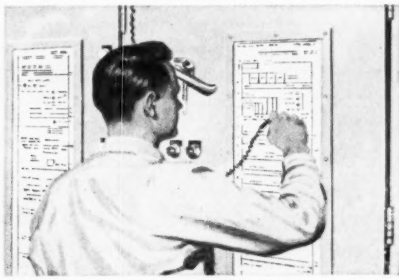
N. P. Bashor, Manager, Electrical Division, W. F. & John Barnes Company, recognized as an authority on machine tool control, says, "We are forever seeking improved techniques and equipment for Barnes machines. The extent to which we have standardized on Cutler-Hammer Three-Star Motor Control and Cutler-Hammer Heavy Duty Oil-Tight Pushbuttons simply reflects our conviction that these are the very best available."

CUTLER-HAMMER
★ ★ ★
MOTOR CONTROL
C-H

Control cabinet doors of Barnes machine opened to show array of Cutler-Hammer Three-Star Motor Control components used.



Control systems for Barnes machines include the unique Barnes Electro-Graphic Detector which can cut trouble-shooting time as much as 90%. Detector circuits permit simple, speedy and safe pinpointing of any operating difficulties. With this detector, plant electricians do not have to be machine designers to be experts in supervisory maintenance.



HOW TO SELL INDUSTRIAL PRODUCTS BY PHONE

Selling by phone is paying off for a steel warehouse company, which streamlined its operations to do the job.

PROBLEM: How do you beat down the high cost of personal sales calls? One solution: Streamline your operations to make selling by phone really effective.

This, in brief, is the way the Rolled Steel Corporation of Skokie, Ill. has pushed its sales over the $8 million mark this year. Rolled Steel is one of the nation's largest industrial steel warehouses with a nation-wide market concentrated in the Midwest.

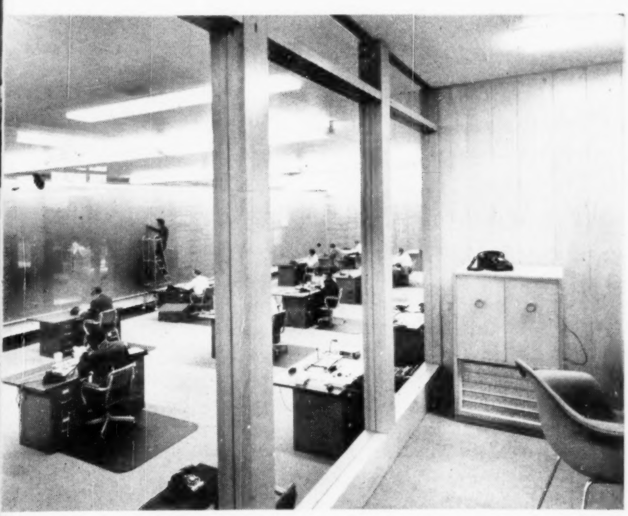
To reach this market, which includes makers of heating equipment, appliances, automobiles, furniture, toys, TV and radio, and farm equipment, Rolled Steel has about a dozen salesmen who spend almost every working minute on the phone. In fact, the company has the largest phone bill—$8,000 a month—in Skokie. The phone expense comes out to $2 for each ton of steel sold.

The dozen salesmen sit in a large room (32 by 74 feet), three walls of which are ten-foot-high blackboards 122 feet in length. Here the company's complete inventory picture is kept up to the minute so that a salesman can tell at a glance whether he can quickly meet the needs of the customer on the other end of the line. Through use of chalks of various colors, such information as type of steel, size, amount, and other data are highlighted. As soon as an order is taken, the item is deducted from the board.

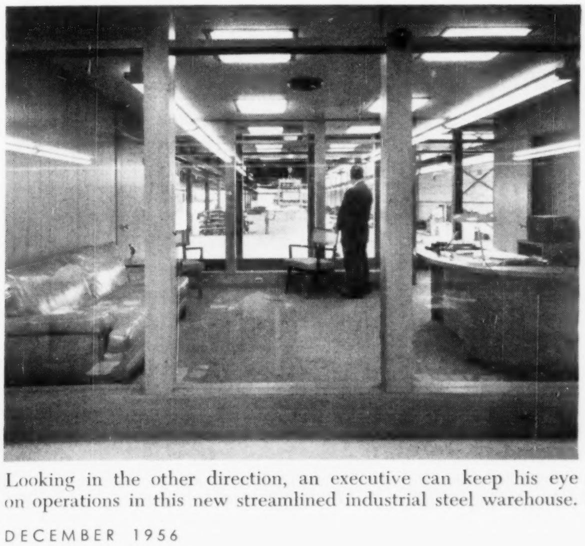
The company is not unaware that selling is a highly personal art and wisely takes steps to add a personal touch to its selling-by-phone program. Each salesman takes a nonselling trip into his territory every two or three months—merely to drop in on customers and help create the personal rapport so essential in selling. In addition, every letter to a customer carries a small *Photostamp* of the salesman involved.

Direct mail is also used. To make it most effective, both a print shop and a punched card installation are part of the set-up. Pneumatic tubes speed up the handling of paperwork, which is made considerably simpler by the compact split-level layout.

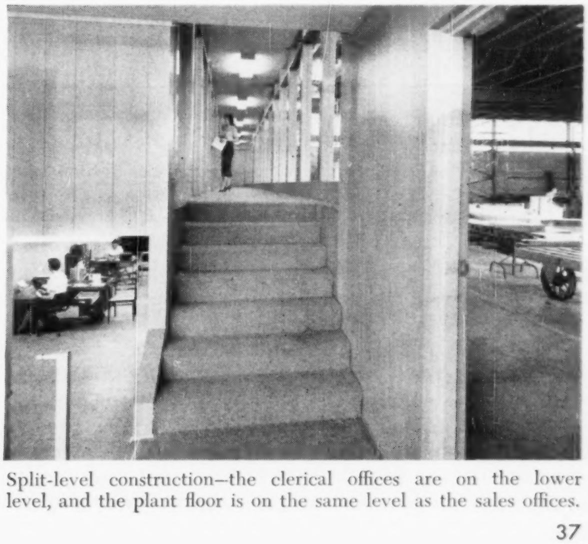
The office-plant layout provides a maximum of vision since, in an operation of this sort, so much hinges on ready knowledge of the stock on hand. —T. K.



The picture window in an executive office frames the floor where the salesmen work and watch the inventory position on the board.



Looking in the other direction, an executive can keep his eye on operations in this new streamlined industrial steel warehouse.



Split-level construction—the clerical offices are on the lower level, and the plant floor is on the same level as the sales offices.

CAN YOU ELIMINATE ASSISTANTS?

Company organization charts show more and more neat little boxes labeled "assistant to," "executive assistant," "administrative assistant"—and often these have assistants of their own. While many jobs in industry are simply too big for any one man to handle alone, is provision of personal staff the only possible answer? Or the best one? Here are one expert's views:

LOUIS A. ALLEN

DURING the past few years the corporate executive has been confronted with some disquieting questions about the way be organizes his work and his business. Not the least of these has to do with the problem of assistants.

To his dismay, many an executive is finding that a formidable variety and number of assistants have multiplied on his management roster, accounting for a disproportionate share of both office space and administrative payroll. As a result, from small corporation to large, there has been eager search for a yardstick that will enable the executive to determine whether he really needs the aides who form his entourage.

The blunt fact is that the assistant is an organizational ambiguity. He is assigned work that other agencies can perform more effectively. He provides artificial support for his boss, and he tends to mask organizational deficiencies. He is asked to play a role that is difficult to define, and virtually impossible to fulfill satisfactorily.

One Company's Experience

A case in point: One company president became alarmed at the disproportionate increase in general administrative expense over the past few years. A count of the kind and number of salaries that were being funnelled into the cost reports showed a ratio of three assistants for every ten managerial positions. Further investigation revealed that having an assistant had become a mark of prestige—a section head promoted to department manager automatically rated one, and sometimes the assistants acquired assistants of their own. The company management development program encouraged the process. Every manager who aspired to move ahead was impressed with the need to develop a capable replacement. This gave quasi-official sanction to a great many assistants who were "in training," or "being broadened," or "getting over-all perspective on management problems."

Enough similar examples could be cited to show that the use of assistants often contravenes sound organization practice. In some cases, an assistant helps to buoy up an executive who is over his head administratively and who would be better off if he were placed at a more comfortable depth *or transferred to another area.* Too often the assistant serves to screen the executive from his subordinates.

If any degree of authority is dele-

gated to, or assumed by, the assistant, confusion is likely to arise. The assistant and his superior may issue conflicting instructions; line subordinates may have trouble deciding whom to go to with problems.

Cost is also a factor. The net result of an assistant position may be that two people are being paid to do one job.

There is also the possibility that an additional organizational level will interpose another salary level. This is likely to depress the salaries below the assistant and increase those above.

Because of these negative factors, many companies have undertaken systematic campaigns to eliminate assistants. Results obtained by one manufacturer are typical. Over a period of ten months, this company transferred, shifted, and otherwise eliminated 23 assistants of one kind and another, for a saving of $207,000 per year in salary costs alone. The move was not made without resistance. As the staff organization planning manager commented: "From the howl that went up, we thought the company would collapse. However, we find that we have tightened up the organization and brought about a lot more personal contact. Some managers are working harder; others are learning to delegate. We haven't lost out on sales or production volume, and our profits are good. So we're convinced we made a wise move."

There is sound evidence of the value of converting assistants to more useful administrative adjuncts or eliminating them entirely. But the defense is not without its adherents—and vocal ones at that.

For the Defense

In one company, a division vice president had a coronary and was on the sick list for almost six months. During his absence, the assistant division manager took over. The assistant manager "did a magnificent job," the president said, "and the only reason he was able to plug the gap was that he had worked closely with the vice president and knew the problems almost as well as his boss."

In another case, an executive vice president had been warned by his doctor to cut down his work load or suffer the consequences. "I was putting in fourteen and sixteen hours a day," said the executive. "Then I made two of our best young managers my assistants and found I could delegate most of the details and get help on the policy decisions I used to handle by myself. Now I have time to think. I even get out some weekends to play golf."

Further examples could easily be cited. It is important to note, however, that the cases presented are not necessarily valid arguments for the use of assistants. What these advocates are saying, in reality, is only that the job of a manager often grows too large for one man. There can be no disputing this. So long as the management team must face up to the swift change of the competitive marketplace, so long as technology and innovation present new problems and challenges, so long as the job of managing the typical corporation remains beyond the grasp of any one man, the harassed executive will frequently need help.

To assess this need and to weigh the desirability of the assistant position compared to alternatives, it is necessary first to isolate and identify the kind of help the manager requires. What is the nature of the work he must do himself? What can he *not* delegate successfully?

What Cannot Be Delegated

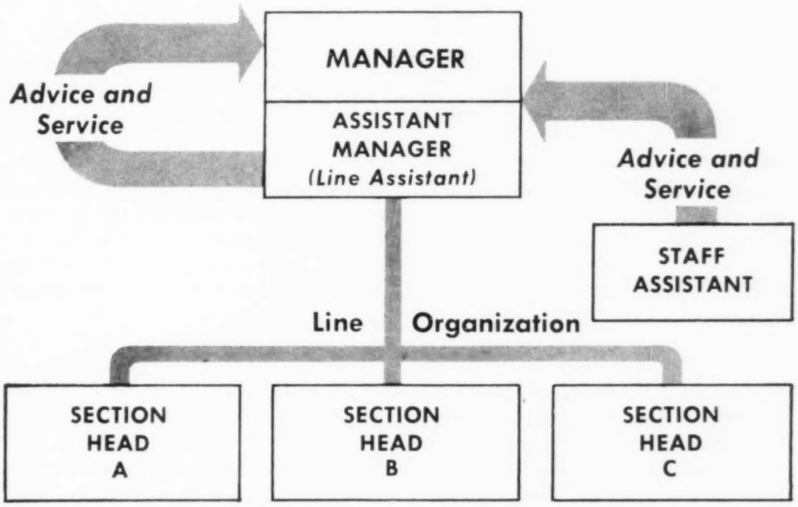
Practically any manager can make out a good case for not delegating anything he does not *want* to delegate. But there are criteria that enable us to identify the responsibilities a manager *must* carry out himself if they are to be performed properly.

Because of his position in the organization, the manager has more perspective than any of the people reporting to him. Only he is so placed as to be able to assess the needs and demands of all his subordinates objectively. Because of this, the manager himself is the only one who can initiate over-all plans for his unit and make final decisions on them. He must decide or interpret objectives, policies, programs, procedures, and budgets for those reporting to him. He must establish a sound organization for his own unit. Only he can provide over-all coordination for the action that takes place. Motivation and control must be the prerogative of the manager also. To the extent that he delegates responsibility and authority for making final decisions on over-all plans, organization, coordination, motivation, and control for his element of the organization, the manager inevitably weakens his capacity to manage effectively.

But if the executive wants to leave himself free for the major over-all decisions, he must delegate the routine and detail associated with his responsibilities to the greatest extent possible, reserving only initiation and final decision to himself.

The manager who wants to organize his own job most effectively should consider three major possibilities: assistants, specialized staff, or line subordinates.

Relationship Between Assistants and the Line Organization



A great deal of misunderstanding surrounds the assistant and his proper place on the management team. The assistant helps his principal by providing him with advice and help in performing the duties he cannot or does not wish to delegate. Two types of assistant should be noted:

Assistants

The *line assistant* is known as the "assistant manager," "assistant director," and so on. His job is to help his chief with the entire range of his responsibilities. He takes over the top position when his principal is absent.

Staff assistants are known as "assistants to," "administrative assistants," "executive assistants," and "special assistants." They have a more limited role than the line assistant; their duties are restricted to providing one principal with help on a limited part of the responsibilities he has reserved for himself. Staff assistants may write speeches, prepare special reports, carry out research for the boss, represent him in public affairs, or even do highly specialized technical work. The staff assistant is an extension of his principal; he has no authority over line positions.

Specialized Staff

Specialized staff provides advice and help to *all* parts of the organization on specialized functions—finance, personnel, law, public relations and so on. The units are highly qualified teams of internal consultants, ready to provide expert advice and service to any manager. Enough specialized staff should be made available to furnish each manager with whatever assistance and counsel he needs in the major specialized areas of his job. This is more effective and economical than assigning less skilled assistants to individual managers.

Specialized staff has two attributes not usually found in assistant positions: objectivity and technical proficiency. Because of its organization-wide relationship, it can bring perspective and balance to consideration of a problem, as well as an intimate knowledge of what other departments and companies have done in similar circumstances.

Line Subordinates

Reporting to each executive is his own line organization. The principal divides the work to be done so that each subordinate unit handles one part of the total job. The sales manager breaks down his line responsibilities into geographical districts or product groups; the controller delegates budgetary control and internal auditing.

Line subordinates take over as much as possible of the execution and routine of the planning, organization, coordination, motivation, and control activities that the executive would otherwise perform himself. The executive can delegate operating decisions to a line subordinate and can hold that subordinate accountable for results. He cannot do this effectively with an assistant or specialized staff.

A sales manager, for example, delegates responsibility for contacting, selling, and servicing customers to his subordinate line organization. He can draw upon specialized staff units for sales promotion, advertising, sales training, and related services. If he is overburdened, analysis of his work load usually reveals that he has held on to too much detail and rou-

continued on page 116

DO YOU NEED ASSISTANTS?

The following checklist will help you undertake a systematic analysis of your need for assistants. In the process, it will also help you clarify your own job. If you conclude you do need assistants, observance of the following points will enable you to assign them important work that is not being duplicated elsewhere in the organization.

☐ *1. Define your responsibilities in writing.*

A realistic appraisal of your need for assistants can be made only in terms of what work you are called upon to perform yourself. There are four steps in analyzing your own job: (A) List the major responsibilities of your job; (B) Check these against a diary of daily activities you maintain for at least two weeks. (C) Ask your immediate superior to prepare, independently, a list of the duties he thinks he has delegated to you. (D) Check your list with that of your superior and reconcile with him areas of disagreement. In some companies, managers have found up to 40 per cent difference between work they think they should be doing and work their superiors believe has been delegated to them.

☐ *2. Analyze your responsibilities to identify management and non-management work.*

You should devote most of your time, as a manager, to initiating and making final decisions on planning, organizing, coordinating, motivating, and controlling the work of the people who report to you. You should delegate everything but the work required to stimulate and make final decisions on these activities.

☐ *3. Delegate all possible performance details to line subordinates or specialized staff.*

Many executives insist on doing themselves some of the fact-gathering, analysis, and preparation of alternatives in problem solving. This limits the time they can devote to actual *management* work. The better procedure is to identify the persons who can logically be expected to handle performance details and to delegate this work quickly and effectively.

☐ *4. Survey and analyze the work done by existing line or staff assistants.*

If you already have assistants, the procedure outlined in (1) and (2) above should be followed to define the work they are doing. Each job responsibility now assigned to assistants should be reviewed critically to determine whether it can be delegated to existing line subordinates or specialized staff. One executive made lists of work he was having his assistants perform and sent these to his line subordinates and to specialized staff heads, with a note asking, "Should this work be done in your department?" He was amazed to find that at least one, and in some cases, up to three of the managers he contacted believed they should be doing one or more parts of the assistants' work.

STATE CAPITOL BUILDING, LITTLE ROCK, ARKANSAS—DEVANEY PHOTOGRAPH

LABOR LEGISLATION, 1957—
a busy time will be had by all

Spurred by two victories, the union counterattack on right-to-work laws will be stepped up. Also on the battle list: workmen's and unemployment compensation, minimum wages.

ALFRED G. LARKE, *Employer Relations Editor*

ORGANIZED labor will put its newly merged strength to its most thorough-going legislative test in 1957, when the legislatures of 45 states and four territories meet in regularly scheduled general sessions. Only the Kentucky, Mississippi, and Virginia legislatures have no sessions scheduled in the coming year, but even they may, of course, be called into special session.

There will be important labor-legislation proposals in the Congress, too, some made by the Administration. But as it looks from December, neither management nor unions will be able to build up the crusading zeal, or heat, necessary to put over a Federal act that the other strongly opposes.

Proposals to amend the Taft-Hartley Act will be coming up, but if they get much beyond the hearings stage, almost everyone will be surprised. Organized labor's effort to build a crusade around the "slave labor" slogan failed to build up enough power to change more than a few minor details of the law. The unions' survival under the act has vitiated many of the arguments offered at the time. Defensively, however, the campaign was comparatively successful.

There may be a lot of hard-core management men and advisers who think the Taft-Hartley Act should be made "tougher"—Fred Hartley is one of them—but apparently the unions' cries of anguish have persuaded the average man that the law must have been tough enough as it was adopted. President Eisenhower's criticism of part of the law in his 1952 campaign no doubt strengthened this conviction.

The unions will probably make their strongest fight to have the T-H provision permitting union shops prevail over state right-to-work laws. As it stands, all Taft-Hartley provisions except this one take precedence over a state law to the contrary. The exception is a long-odds favorite to remain in the law.

So far as Secretary Mitchell has worked out Labor Department proposals, the Bureau of National Affairs reports, they include a perennial equal-pay-for-women bill, which is perennially defeated; extension of unemployment insurance coverage to military personnel, a proposal backed by the Interstate Conference of Employment Security Agencies; and extension of wage-hour law coverage into the retail field.

Most likely to raise management hackles is the possibility Mitchell will propose a Federal safety stand-

ards bill with grants-in-aid to states to help them increase industrial safety. Organized representatives of management, such as the state manufacturers' associations, see such legislation as the entering wedge for Federal control of a number of industry matters now controlled by management alone or at most regulated by state law.

In the state legislatures, the biggest labor battles of 1957 will take place on the issue of right-to-work laws—acts primarily forbidding any kind of compulsory unionism and insisting on the open shop, sometimes putting other restrictions on union organization by limiting picketing for some causes and forbidding it entirely for other causes.

Revision of workmen's compensation laws is likely to be sought by unions or management or both in almost every legislature meeting in 1957; most will see efforts by labor to increase unemployment insurance benefits and by employer groups to tighten up eligibility rules; and a tug of war over the legality of supplemental unemployment benefit payments will occur in many states.

Other measures due to be introduced in several states will concern minimum wage rates in intrastate jobs, general labor legislation of the Little Wagner Act or Little Taft-Hartley Act type, tax laws, occupational safety and health laws, and civil rights legislation.

Real Battle Looms

That both parties are prepared for a real battle for state legislators' votes is evident. "Labor Scores State Gains, Legislative Battle Looms," says the main headline in a mid-November issue of the AFL-CIO News. The article begins:

"Labor will have its work cut out for it next year when the majority of state legislatures hold their sessions.

"In the November 6 elections, labor-endorsed candidates scored notable, and in some cases decisive, gains in the battle for control of the state law-making bodies. These were offset, however, by losses in other areas . . .

"Two referendums were held on the 'right-to-work' issue. The attempt to extend the union-shop ban to Washington went down to defeat by an overwhelming margin, but the effort to repeal it in Nevada lost by 6,000 votes."

On the other side of the fence, representatives of employers' principal spokesmen in the states, the state manufacturers' associations, began preparing for the 1957 legislative year back in August. Meeting in Santa Fe, N.M., they assessed the results of their legislative campaigning in 1956, established their own targets for 1957, and forecast the unions' major aims. Then they swapped experiences on how to meet the problems they foresaw. Of a dozen subjects they saw as most important, all were either concerned with labor relations or labor compensation, or were matters like state taxes on which unions and employers usually disagree.

The right-to-work law will be the angriest issue in states where it is an issue at all. In heavily industrialized and heavily organized states like New York, Pennsylvania, Michigan, Illinois, California, there is so little chance of passage that a measure is never introduced. It is law in those states where union members are few and their influence small—but also

continued on page 68

The Odds Business Must Battle

michigan manufacturers' association

POLITICS AND WORKMEN'S COMPENSATION

RECENT CHANGES IN W. C. LAW

I·M·A

State Legislation

WORKMEN'S COMPENSATION AND OCCUPATIONAL DISEASES LAWS

Cooperation of Member Firms Requested in Effort to Improve Provisions and Administration of Laws

Employer associations alert members to important legislation, prepare for coming tussles.

AFL-CIO News

Vol. 1 — No. 50

Labor Scores State Gains, Legislative Battles Loom

Brazil Hails Meany Freedom Policies

Rio de Janeiro—Brazilian labor, horrified by the Soviet army's mass murder of Hungarians seeking their freedom, hailed AFL-CIO Pres. George Meany's declaration that workers can progress only through free trade unions under democratic government.

Meany spoke at a luncheon, tendered by national labor leaders, which was a high spot in the four-day visit of an AFL-CIO delegation in the Brazilian capital.

Accompanying him on the good-will tour, during which five Latin American countries are to be visited, are Pres. O. A. Knight of the Oil, Chemical & Atomic Workers and Pres. David Dubinsky of the Garment Workers.

Enthusiastic Welcome

Court Bars Segregation On Buses

The Supreme Court struck down

Balloting Is Marked By Upsets

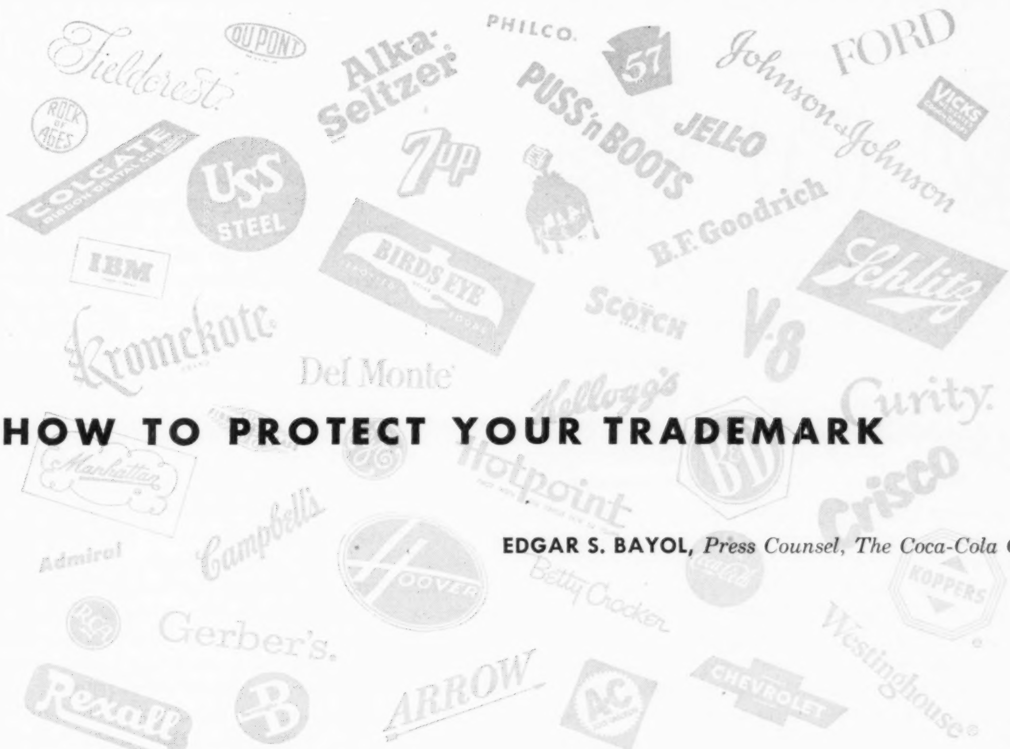
By Milton Plumb

Labor will have its work cut out for it next year when the majority of state legislatures hold their sessions.

In the Nov. 6 elections, labor-endorsed candidates scored notable, and in some cases decisive, gains in the battle for control of the state law-making bodies. These were offset, however, by losses in other areas.

The results of the elections of

Union newspaper shows confidence while celebrating victory in right-to-work referendum.



HOW TO PROTECT YOUR TRADEMARK

EDGAR S. BAYOL, *Press Counsel, The Coca-Cola Company*

Your trademark belongs to you only as long as you use it properly and keep its meaning clear in the mind of the buying public. If your trademark becomes a household word, your rights may vanish unless you have taken steps to preserve them. Here is one expert's word to the wise on how to keep your trademark yours—forever.

MILLIONS of trademarks are in use today—and more than half a million are currently registered in Washington, from many hundreds by a single company all the way down to two for a single product by The Coca-Cola Company. Trademarks are among the most widely used modern merchandising devices, and one of the oldest human institutions.

An archaeologist digging in the refuse heaps of a prehistoric city on the island of Crete discovered the trademark of a lampmaker on bits of broken clay. Digging further, he found enough others to compile a directory of the lampmakers of that ancient city. Several thousand years ago, the law of Egypt required the owners of brickyards to put their mark and the mark of the particular artisan on every brick produced. Thus the purchaser could hold the yard owner responsible if the bricks were defective, and the latter could identify and punish the derelict slave.

Since the earliest days of trade, every great mercantile venture has adopted some symbol to represent the origin and authenticity of its goods or services. Such enterprises as the East India Company, the banking house of the Lombards, the Hudson's Bay Company, and hundreds more employed special signs by which the world could recognize them. Throughout the centuries, the mark of a trade has been an honored and a treasured thing.

In the Middle Ages, when the trades guilds were formed, regulations similar to those of early Egypt required that every article bear both the guild mark and that of the individual craftsman. This was done as a protection for the buyer and as a means of promoting the guild system. A guild mark showed that the goods were not contraband, and the artisan's mark served to fix responsibility for the quality of workmanship, so that a slovenly worker could be disciplined by the guild.

During the same period, the law of France required the makers of crossbows to put their mark on every bow and the helmet makers and armorers to identify their work by distinctive marks. Obviously, it was a serious matter for a knight if his armor fell apart while he was busy at his trade.

Now, some craftsmen were naturally more skilled than others and thus produced superior goods. So, by the gradual process of evolution, certain marks came to suggest good workmanship and to symbolize goodwill. When the guild system broke up, marks of this kind survived. And from them has developed the modern idea of trademarks as symbols of the reputation and integrity of the manufacturer or merchant.

Through these years of growth, the trademark has performed three important functions, always in the public interest: First, it has identified the work or goods of a particular

TRADEMARKS THROUGH THE AGES

maker. In this way it has enabled members of the buying public to identify products, and select those they prefer without difficulty. Second, it has had the effect of guaranteeing to the buyer that every subsequent purchase of the same goods will be of the same quality. And third, it has made it possible for the maker of superior products to gain larger sales and growing patronage.

In recent times, particularly during the last half century, trademarks have developed another function that has made them one of the most important cogs in the wheels of modern business. That, of course, is advertising. For advertising is the mainstay of mass distribution and selling. Yet, without the handy little trademark around which to build public recognition and acceptance, advertising would be seriously handicapped.

The key characteristic of a trademark, however, has not changed. Now, as it has been throughout its history, it is used to identify the product of a specific maker or merchant. A trademark is the symbol or the brand name of a product used to identify and distinguish one maker's or merchant's goods from those of his competitors.

The Supreme Court Definition

Fifteen years ago, our highest court defined a trademark this way: "If it is true that we live by symbols, it is no less true that we purchase goods by them. A trademark is a merchandising shortcut which induces a purchaser to select what he wants, or what he has been led to believe he wants. The owner of a mark exploits this human propensity by making every effort to impregnate the atmosphere of the market with the drawing power of a congenial symbol. Whatever the means employed, the aim is the same—to convey through the mark, in the minds of potential customers, the desirability of the commodity upon which it appears. Once this is attained, the trademark owner has something of value."

Marks today include symbols as various as the picture of the bearded Smith Brothers on a cough drop package, the name Johnson & Johnson on adhesive tape, the shape of a Caron perfume bottle, and service marks like the Jackie Gleason pose when he says, "And away we go!" All are valuable properties, identifying sources and distinguishing products or services.

How Trademarks Are Lost

Although many business men and laymen do not realize it, trademarks come into being and gain their validity through use—use of the mark on the product sold in commerce—and not through registration in the U.S. Patent Office. Every one of the registered 536,205 trademarks that were on record in Washington at the end of 1955, as well as countless unregistered marks being used all over the United States, is a fragile property that may be lost forever through misuse or non-use. The validity of any trademark is retained only through continuous and proper use.

Trademarks are synonymous with brand names, but are not to be confused with patents or copyrights, which are in the nature of limited monopoly privileges granted by the Government for fixed periods of years. At the expiration of these fixed periods, patents and copyrights fall into the public domain. Trademarks have no fixed life span. With proper use, they can remain valid as long as men live in our free society with its present legal tradition and statutes.

Although registration of trademarks is highly desirable, it is not essential; a trademark may be perfectly valid although unregistered. But registration serves to put the world on notice of your claim to the mark. In the event of a dispute, it is *prima facie* evidence of the priority of your claim. It shifts the burden of proof to the other party.

But, whether registered or not, the validity of the mark still hinges on its ability to identify the product or service of a specific maker or seller. It follows, then, that if the mark should become a generic term—the common word for the goods themselves or for a class or type of goods—it may no longer be valid because it can no longer perform its identifying function. And, it is most important to remember, its status is a matter of fact—not law. The test is: What does it mean to the buying public?

For some reason, this seems to be a particularly hard fact to grasp, especially by marketing and advertising people, whose primary business is, of course, to increase sales. A common fallacy is the notion that nothing finer could happen to a trademark than to have it become "a household word."

Two Historic Examples

Two examples of this failure have become historic. The first is the famous Bayer case, which decided the fate of aspirin. For a long time prior to that decision, "Aspirin" had been considered a valid trademark of the Bayer Company. After the patent had expired, another firm started manufacturing the popular headache remedy and marketing it as its brand of aspirin. The Bayer Company entered suit to enjoin the use of the term. But the court held for the defendant on the grounds that, largely through the advertising and market-

ing practices of the trademark owner, "aspirin" had become generic.

"The single question," to quote from the decision of the court, "is merely one of fact: What do the buyers understand by the word. . . ? If they understand by it only the kind of goods sold, then . . . it makes no difference whatever what efforts the plaintiff has made to get them to understand more."

The other example is the cellophane case, which was decided in 1936. There, a very similar situation arose. The Du Pont Company attempted to enjoin the use of the mark "Cellophane" by a competitor after the patent on the process for its manufacture had expired. In this case, the court pointed directly to the advertising practices of the trademark owner and set down dicta that are ruling case law today. The decision, written by the distinguished Appellate Court Jurist, Augustus Hand, stated:

"The course of conduct of the complainant and its predecessors, and especially complainant's advertising campaign, tended to make 'cellophane' a generic term descriptive of the product rather than of its origin. . . .

"It therefore makes no difference what efforts or money the Du Pont Company expended in order to persuade the public that 'Cellophane' means an article of Du Pont manufacture. So far as it did not succeed in actually converting the world to its gospel it can have no relief."

Other terms, once trademarks, that have suffered the plight of becoming generic include "escalator," "milk of magnesia," "zipper," "linoleum," and "shredded wheat." Such words became generic when the public ceased to think of them as the specific products of specific makers. This danger is the Achilles' heel of trademark preservation.

The Lanham Trademark Act

This point was further emphasized in the Lanham Trademark Act (as it is popularly known), which became effective in July of 1947. The statute provides (sec. 15) that, "No incontestable right shall be acquired in a mark or a trade name which is the common descriptive name of any article or substance, patented or otherwise."

And in another part (sec. 45) it states, "A mark shall be deemed to be abandoned—when any course of conduct of the registrant [the trademark owner] including acts of omission as well as commission, causes the mark to lose its significance as an indication of origin."

Thus, both the judicial law and the statute law of the United States hold that trademark rights may not be maintained in a mark that is, or becomes, a generic term. And they make it clear that it is up to the trademark owner to try to prevent his mark from making that unfortunate transition. The delicate goal to aim for is to make your mark as popular as possible and at the same time insure that it identifies your business house as the source of the particular product or service.

As a result of court decisions and the passage of the important Lanham Act, trademark owners have become aware not only of the great assets they have in trademarks, but also of their peculiar responsibility for preserving them.

American business today is more conscious of the trademark than at any time since 1870, when Congress passed the first legislation to protect this remarkable merchandising device. Leading business and trade journals, newspapers of both limited and general circulation, and national consumer magazines have carried stories and articles on trademarks. Colleges have conducted seminars on the subject, great corporations have produced sound and color films about it, and some of the largest manufacturers are now running extensive advertising campaigns devoted exclusively to education on proper trademark usage.

Two Associations That Help

Credit for the heightened consciousness of the situation is due to alert company counsel and members of the trademark bar as well as to the activities of The United States Trademark Association and Brand Names Foundation.

The latter organization devotes its efforts to educating retailers and the general public to the values of the trademark concept. Its mass media advertising program utilizes more than $12 million worth of advertising space and time a year—all of which is contributed by the various mass media.

The former is the older organization—established in 1878—and is composed of some 500 owners of trademarks and leading trademark attorneys. It is concerned more with the actual protection of trademarks. In recent years, it has extended its information activities to the business layman. Last year, for example,

through a committee of its members. The United States Trademark Association published the book, *Trademark Management—A Guide for Businessmen*, which is the first comprehensive treatment of the subject in non-technical language (see August 1955, page 57). Its information committee also produced "The Story of Trademarks," an eight-part three-dimensional display, which is a traveling exhibit featured at college seminars and business conventions around the country.

Educational Advertising

The present widespread practice of educational advertising on trademarks themselves was pioneered by The Ethyl Corporation with a series called "The Trademarks of Nature," which appeared in leading mass circulation magazines. It is said this series was inspired by the late Edward S. Rogers, who for many years was the dean of trademark attorneys.

The first such advertising dealing with correct trademark usage and directed to publishing and advertising personnel was started by The Coca-Cola Company. It is still appearing in several score trade publications and points out the importance of capitalizing trademarks and the fact that both *Coca-Cola* and *Coke* are trademarks for the same product. Similar advertising series are now being used, among others, by Minnesota Mining and Manufacturing Company, for *Scotch Brand* cellophane tape; Johnson & Johnson, for *Band Aid* adhesive bandages, and the Technicolor Corp., of course, for *Technicolor*, which is both its trademark and the distinguishing part of its trade name.

These strictly institutional advertising campaigns are a commendable expression of the modern trademark owner's recognition of his responsibility. And they are one important and effective means of protecting his invaluable rights in his mark. But there are other areas that require careful attention, if he is to preserve those rights.

Policing Is Necessary

As in the case of freedom—constant vigilance is the price of trademark preservation. The trademark owner is charged with detecting as well as correcting misuse of his mark. He should make sure that neither he nor his people misuse the mark—and that all appropriate steps are taken to prevent or correct its misuse by anyone else.

Corrective activities in trademark preservation are usually called "policing" the mark—a rather unsavory term, unfortunately—and they cover three main areas:

First, *policing within the company*—in the trademark owner's own business, among his employees, his representatives, and others directly on his payroll.

Next, *policing in the trade*—among wholesale and retail outlets, in the display and advertising material they use, in advertising by others, in promotion by non-competitors who may be trying to cash in on the popularity of a mark by associating it with their own products.

Third, *policing in the fields of publishing and communications* to prevent or correct misuse of the mark in newspapers, magazines, and books, and on radio and television.

Every business is different, of course. So the most appropriate methods and techniques for handling the policing problems will vary widely from one concern to another. But one thing applies to all. Nothing should be done without a careful study and analysis of the situation. And the program devised should be tailored to fit the particular business. This should be done after consultation and in close cooperation with your trademark counsel. It has proved helpful to utilize public relations approaches and techniques in carrying on the policing functions. But they should not be regarded as a substitute for competent legal guidance in this relatively complex field.

According to Julius R. Lunsford, Jr., well-known trademark attorney and writer on the subject, your counsel should have the opportunity to see all advertising material, sales literature, labels, and other promotional matter in which the trademark is to be used.

Within the Company

Policing within the company is largely a job of seeing that information on proper trademark usage gets to all employees and others who are likely to use it in any way. Even a stenographer who types a trademark incorrectly in company correspondence (without capitalizing it, for example) can unwittingly contribute to its vulnerability.

An effective initial step is the publication of a basic trademark usage booklet, telling employees of the correct and incorrect ways of using the mark and why they are important. The booklet is not only distributed to employees; it serves double-duty among representatives, advertising agencies, distributors, and dealers—in fact, everyone who may have occasion to present the mark in any manner to the public. Some effective examples of this type of informational booklet, to mention just a few, are being used by General Motors, Eastman Kodak Company, Monsanto Chemical Company, Stromberg-Carlson Company, Minnesota Mining and Manufacturing Company, and Westinghouse Electric Corporation.

One example of an informational booklet is the *Goodyear Trademark Manual*, which presents its appeal for proper use, and the necessity of proper use, in a factual and straightforward manner. Here are two paragraphs from this manual:

"To avoid improper use of a mark by us, we must at all times—on the product or labels used on the product, in our advertising and in our publicity releases—use the mark solely as an indication of origin; as

continued on page 120

What are the key points to look for in the selection of a good trademark? Here is a simple six point checklist from the *Goodyear Trademark Manual:*

- ☐ 1. Is the trademark easy to read and speak?
- ☐ 2. Is it easily remembered?
- ☐ 3. Is it brief? Other companies have concluded from experience that a four- or five-letter trademark of two syllables is the best type of mark.
- ☐ 4. Is there any radio or TV difficulty with pronunciation?
- ☐ 5. Is it suitable for export use?
- ☐ 6. Is it descriptive of the product? Descriptive marks are of little value; it is difficult to procure registration and they are very seldom upheld by the courts. However, a suggestive mark may be valid.

Holiday giving to purchasing agents and others who control orders can get so out of hand and distort the real spirit of Christmas that some companies have abolished it altogether. But each company is also on the receiving end, and this has its headaches too. Here's one simple plan for painless receiving.

HOW WE SOLVED THE CHRISTMAS GIFT PROBLEM

E. W. MEYERS, Jr., *President, Trion, Inc.*

CHRISTMAS is a wonderful time . . . especially for kids and purchasing agents. For both there is indeed a Santa Claus. To the child he is a bewhiskered, jovial old gentleman in a red suit who arrives via an octet of low-flying reindeer. To the purchasing agent he is the mailman or the supplier's salesman who strolls through the door a few days before Christmas, and heartily shakes hands with the P. A.—while the latter cordially extends the season's greetings and tries not to be curious about the brightly wrapped package under the salesman's left arm.

It's a wonderful season around the office, and true to the spirit of giving, the vendor, too, feels a lightening of heart . . . and of purse.

Lately many manufacturers have begun to feel less like Santa and more like the famed but fabled scientist who created a benevolent giant, only to have it turn into an uncontrollable monster. Although even business gifts are at least partially motivated by the inner warmth that the season generates, manufacturers are finding that well-meant presents often arouse ill feeling among those in the specifying and buying picture who do not sign purchase orders.

Trion, Inc., has curbed the Christmas monster by refraining from this type of giving entirely. The decision was not easily made, for the spirit of Christmas is strong, and there are many good customers whose past favors we should like to acknowledge. But the chances of unknowingly offending others overbalanced the scale.

Reinforcing the decision was a recent survey by *Advertising Requirements.* Fifty-two per cent of the larger companies queried (those with 500 or more employees) reported that they gave no Christmas presents, and comparison with an earlier survey indicated a downward trend in giving.

Further support was given to Trion's policy when the same publication quoted a Whippany, N. J. manufacturer who said, "Our gift problem is whom to leave out; rather than risk insulting anyone, we give nothing."

A Cleveland company stated: "Most companies . . . consider it [Christmas giving] a 'necessary evil' because of precedent and competitive practices. We have broken away from the habit with no apparent loss of good-will or business."

Some say that Christmas gifts have a necessary place in business. I would not attempt to argue this point, for many companies that operate in a local or limited area and know their customers well personally have found giving to be extremely worth while. Whether it also leads to headaches I can only guess. But for a manufacturer with an international market the spirit of Christmas must be curtailed, or it would soon get out of hand.

Some indication that customers themselves approve curtailment is found in results of an American Management Association survey conducted last year. Of 35 companies questioned, 16 had policies designed to discourage acceptance of gifts. Some of these policies had even been initiated by the purchasing agents themselves. Spokesmen for others in the group indicated that they took a dim view of anything that might cause a buyer to feel obligated to a supplier or to compromise his judgment.

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NEW MATERIALS THAT BOUNCE

III Butyl Rubber

ANNESTA R. GARDNER, *Industrial Editor*

EDITOR'S NOTE: *This is the third in a series of articles on the newer rubber-like materials.*

The first, dealing with silicone and fluorocarbon rubbers, appeared in the April issue. The second, on polyethylene rubber and polyurethane rubber, was published in October.

Butyl, described here, is not a brand-new material, but there is exciting news for industry in developments that are now taking place.

TWENTY MONTHS AGO, butyl rubber was being written off as a dead issue. Its biggest—almost its only—market was disappearing down the road. There seemed little hope for recovery.

Today, butyl is more than convalescent. It is hard at work in footwear, tractors, industrial and garden hose, spark plug boots, and chair covers. It is being used in toys and electrical equipment. It even has a new foothold in its old market—the automotive field (see page 51).

What happened? It's a remarkable story, and an inspiration for anyone who is making and marketing a product in a fast-changing competitive arena.

Butyl rubber is made from two petroleum refinery gases—isobutylene and isoprene. It was developed by scientists at Esso Research and Engineering Company back in 1937. At the time, it didn't seem to offer too much promise. Plenty of natural rubber was available at reasonable cost, and butyl couldn't match it in resiliency or resistance to compression set. Anyway, processors were used to working with natural rubber and didn't want to change.

Butyl did, however, have two outstanding qualities: ozone resistance and air retention. That made it an excellent material for automobile tire inner tubes, and, in due course, butyl had the inner tube market signed, sealed, and delivered.

That's just about all it did have.

During World War II, 85 to 90 per cent of the butyl produced went into tubes. Even when the war ended, butyl continued to be produced in government-owned plants and channelled directly to tubemakers.

But Esso researchers still believed that something more could be done with butyl. So, in April of last year, Esso and its affiliate, Humble Oil Company, put $32 million on the line and bought the government plants.

Three months later, the tire industry plunged a real coffin nail into butyl's one big, stable market. It began mass production of the tubeless tire.

What to do? Try to get back as much of the investment as possible before the tubeless tire replaced tubed tires completely? Shut down or convert the plants? Or put shoulder to wheel in research, production, and sales to develop new markets at least as fast as the old one shrank?

Esso chose the latter course. And, aided by favorable pricing (butyl is at the bottom of the rubber price ladder—as cheap as GR-S, the high-tonnage butadiene-styrene synthetic), it's turning the trick.

The transportation industry is still butyl's biggest customer, but non-tire uses for butyl are more than making up for the drop in inner tube production.

Rubber fabricators are discovering that butyl has many desirable qualities besides ozone resistance and air retention. In tear resistance and flex life it's said to equal or surpass natural rubber. It withstands attack by oxidizing chemicals and animal and vegetable oils. Its moisture absorption is low.

Butyl's tensile strength is close to that of natural rubber; and, unlike GR-S, it exhibits good physical properties without the addition of large amounts of carbon black. This means that serviceable light-colored parts can readily be made—white sidewalls for tires, for instance.

Butyl's heat resistance is excellent. It operates at temperatures to at least 250° F on a continuous basis, and it resists heat-aging. Furthermore, while it is not so resilient as natural rubber at room temperature, it holds its "bounce" as the temperature rises so that it improves comparatively at higher levels. In addition, the fact that butyl is softer than

HEAT RESISTANCE

Chemical processors and ore refiners can use butyl belts to handle hot materials. B. F. Goodrich says this one will stand temperatures as high as 300° F for long periods.

other rubbers and not quite so resilient at room temperature makes it a good shock absorber. It tends to reduce operating noise, too.

Butyl's electrical properties are good—as good as polyethylene, Thiokol Chemical Corporation reports—and recently ways have been found to make them even better, a fact that electrical equipment manufacturers are now beginning to recognize.

Anaconda is now using butyl extensively for wire and cable insulation, and reports it exceeds the standard ozone resistance requirement by more than 2,000 per cent.

General Electric has been using molded butyl insulation on instrument transformers for quite a while.

At first, though, applications were limited to units with ratings of 5,000 volts or less. At higher voltages, increased electrical surface creepage led to failure from carbon "tracking."

Now, GE has found a way to make butyl almost completely resistant to this type of attack. Result: A full line of butyl-molded instrument transformers, with ratings as high as 15,000 volts.

Originally, GE's Instrument Department chose butyl for transformer insulation because of its moldability, flexibility, heat stability, and resistance to chemicals, ozone, and ultraviolet light.

"Butyl is strong in all of these respects," G-E engineers point out, "while other common materials are weak in one or more of the desirable characteristics. On the other hand, materials superior to butyl in these properties are often deficient mechanically or unsuitable for economic reasons."

Butyl is rapidly taking hold in the coated-fabric field, too, because it combines low cost with resistance to water, chemicals, and weathering.

Aldan Rubber Company, for instance, now offers quite a range of butyl-coated fabrics, both black and in color, to makers of tarpaulins, heating pads, automobile convertible tops, hospital sheeting, and baby bath tubs.

Leading suppliers of hose and conveyor belting—Boston Woven Hose, Hewitt-Robins, Quaker Rubber, U. S. Rubber—are turning to butyl for steam, garden, and swimming pool hose, hot-materials conveyor belts, and all sorts of mechanical goods used in meat packing houses and vegetable oil processing plants. It is even being considered for the new "moving sidewalks" because of its durability and low cost.

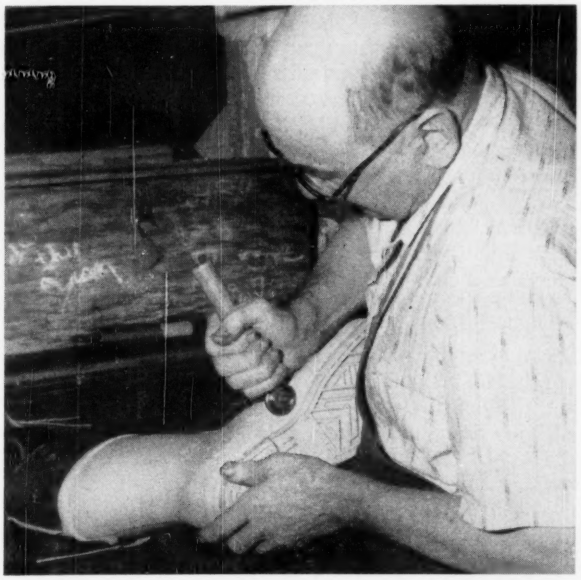
Butyl still has its limitations, of course. Most fabricators feel that this elastomer is not so easy to process as natural rubber. Butyl takes longer to cure, and it must be carefully protected from contamination by other rubbers during processing or it won't cure properly. (The presence of as little as 1 per cent of GR-S can disrupt the curing process.)

On the other hand, small additions of butyl to other materials can have a good effect, particularly on resistance to aging and weathering. Door seal moldings for the German *Volkswagen* are fortified in this way; and Bell Telephone Laboratories reports that addition of butyl rubber (about 5 per cent) to the polyethylene plastic used to insulate transatlantic cable reduces the danger of environmental stress cracking.

In some cases, though, the very properties which make butyl desirable can make it difficult to handle. Albert Dannenbaum, president of Aldan Rubber, points out that butyl's impermeability to gases, so important in inner tubes, can cause plenty of headaches in coated-fabric production. It's a problem with hose and belting, too. Unless special precautions are taken during processing, gases may be trapped in the material and cause blistering and porosity.

Also on the debit side is the fact that butyl's resistance to aromatic oils and fuels is not too good. However, few rubbery materials are able

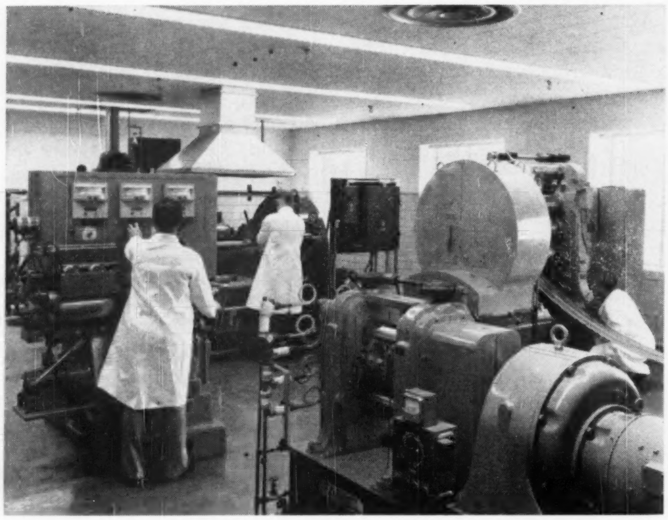
ANIMAL FAT AND OIL RESISTANCE



Dairy workers and meat packers need waterproof boots that will stand up under tough conditions. They have to resist salt solutions and caustics as well as natural fats and oils. That's why U. S. Rubber Company's Footwear Division makes these of butyl.

OZONE RESISTANCE AND ELECTRICAL INSULATION

Electrical equipment makers now use butyl insulation on many products, are learning how to extend its range. Special additives, for instance, make it track-resistant as well as ozone resistant. Here, G-E engineers test new butyl-molded outdoor transformer.



Standard machines like these mixers, mills, calendars, and extruders at new Enjay lab can be used to process butyl. Special precautions are advised, though, to prevent contamination by other rubbers and to assure proper cure. Tests here pave the way for new applications like those at right.

Variety of shapes and forms is indicated by this butyl display. Coated textiles are at upper left, extruded sections in lower foreground. Molded parts include seals, gaskets, pedal pads, bellows, vibration dampeners, insulators.

to take these compounds. Butyl's performance in this respect never interfered with use of the elastomer for inner tubes, and certainly does not seem to be barring its application in other automotive components.

Likewise, butyl's relatively high compression set and tendency to cold flow do not eliminate it from consideration for gaskets, seals, spring and axle bumpers, and other parts in which a fair amount of resiliency and recovery are required.

Even the fabrication problems that have been encountered with butyl are by no means insoluble. B. F. Goodrich Chemical Company has a new bromine-modified polymer (*Hycar 2202*) that is said to be much easier to process, faster-curing, and less susceptible to contamination than the standard grades. (It is this new material that Goodrich is using for the tubeless tire liner pictured on the opposite page.)

Right now, bromine-modified butyl is priced at 65 cents a pound. That's nearly three times as much as the standard type. But it's still well under the cost of such potentially competitive materials as chlorosulfonated polyethylene and polyurethane rubber.

Butyl research programs are beginning to pay off in other ways, too: Enjay now has several non-staining formulations that can be used for garment pads, gaskets for home appliances, and the like.

Monsanto recently announced a chemical modifier that "approximately doubles the resilience and strength under strain of unmodified butyl rubber."

Not long ago, Esso Research and Engineering unveiled "the first true butyl latex," opening up a host of possibilities in dipped, foamed, and adhesive products.

This particular latex is an adhesive material, specifically developed to solve manufacturing problems in all-butyl tires (see opposite page). But Esso researchers say a general-purpose latex is on the way.

It is progress like this that is encouraging new producers and marketers to enter the butyl field, both here and abroad.

In recent months, two U.S. companies have been licensed to make butyl (Goodrich-Gulf Chemicals, and Petroleum Chemicals, Inc., a jointly-owned subsidiary of Cities Service and Continental Oil), and a French combine has been formed to become the first European producer. In addition, there is to be at least one new marketer of butyl—Thiokol Chemical Corporation. These new entries will bring total productive capacity for butyl to well over 100,000 tons a year. That in itself is a tribute to the vitality of this long-neglected material, and a promise of progress to come.

Summing up, low cost is certainly one of butyl's biggest selling points right now. It's a third less than natural rubber and neoprene, and a mere fraction of the price of such elastomers as chlorosulfonated polyethylene, polyurethane, silicone, and fluorocarbon rubber. Yet it offers many of their advantages, plus quite a few special properties of its own.

Butyl is equal or superior to both GR-S and natural rubber in:

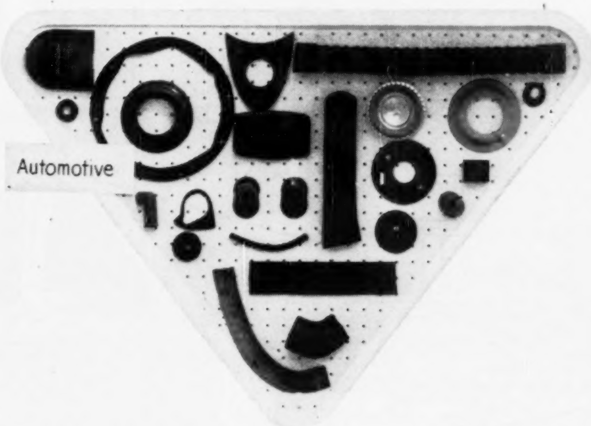
- air retention
- weather resistance
- resistance to ozone and oxidizing acids
- resistance to heat-aging
- resistance to animal and vegetable oils
- flex life and tear resistance

The standard types of butyl still are limited in:

- compatibility with other rubbers
- certain types of abrasion resistance
- resiliency at room temperature
- adhesion (to itself as well as to other materials)

But, at the rate butyl is moving now, these limitations seem little more than temporary. Now is the time to fit it to your plant and products.

GETTING BACK ON THE ROAD



New automotive applications for butyl are proudly displayed by Enjay Company. Some passenger automobiles now have as many as 100 different butyl parts like these.

WHEN THE tubeless tire came in, it blew out butyl's one big market: the inner tube. But, following the old adage, "if you can't lick 'em, join 'em," rubber processors are finding plenty of new ways to use butyl in automobiles. Now, it seems that, long before the last inner tube is made and used, butyl will be back on the road, and healthier than ever before.

W. J. Simpson of Chrysler Corporation notes that butyl offers many advantages for automotive use, in addition to its low price:

The increased emphasis on color in automotive styling, he points out, should mean increased attention to butyl for exposed parts. It has better weather resistance than GR-S and is easier to color, both by painting and by incorporation of pigments.

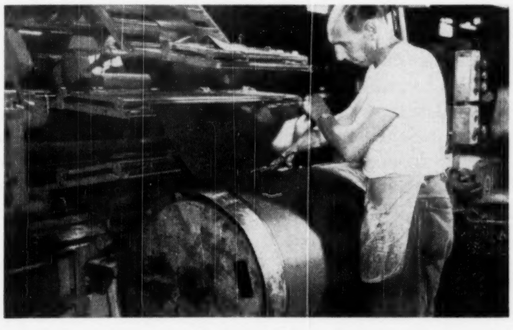
Weather resistance plus air retention make butyl a good choice for automotive radiator hose. And, says Simpson, butyl's tear resistance is being used to advantage in weatherstrips and other parts which are stapled in place.

Esso Research reports experiments with auto tires show that butyl's softness and damping ability make butyl tires almost squeal-proof.

As a primary material of construction for tires, though, butyl's position will be much different from what it was in inner tubes. There, its outstanding air retention, plus moderate cost, gave it a niche all its own. In tires, it must not only compete with natural and general-purpose synthetic rubber, but also with such new high-performance materials as chlorosulfonated polyethylene and polyurethane rubber. While the latter are far more costly, they do offer special qualities, and may capture the premium field.

Still, if there is any lesson to be learned from the butyl story, it is this: A good material may sometimes seem downed, but should never be counted out.

Even the tire market is not completely closed to butyl. B. F. Goodrich is now producing butyl liners for tubeless truck tires commercially, and says they do an excellent job.



All-butyl tires may be on the road before long. Esso Research is now testing them. Its engineers report that butyl tires wear well, and give a smooth, quiet, comfortable ride.

More than half the sales revenue of some leading companies results from products that didn't exist fifteen years ago—a direct payoff from industrial research. While not every manufacturer can support full-scale laboratory work, nearly all can profit by keeping abreast of what's being done.

Here's how . . .

Research: RADAR FOR PROGRESSIVE MANAGEMENT

MAURICE HOLLAND *and* MALCOLM ROSS

"RESEARCH is at the core of productivity," J. E. Hobson, then director of the Stanford Research Institute, told a 1955 meeting of the American Institute of Chemical Engineers. Doodling with data on research growth, he came up with the estimate that the nation spent as much on research in the five years between 1949 and 1954—$18 billion—as it did in the previous 162 years.

Considering that there is a time lag of approximately five to ten years between research and distribution of the new products it makes possible, the effect of the expenditures begun in 1949 is only just now becoming evident. And results, be it noted, are in some part being made obsolete by currently increased expenditures on research and development.

What does this mean to the individual manufacturer? Each must answer for himself, and, in the light of his own situation and needs, decide what his company should spend on original research and how. The one inexcusable negligence is to ignore what is going on.

Whether a company maintains a research staff, contracts out its research projects, or attempts to maintain its competitive position by other means, it should make a conscious, positive effort to follow scientific developments closely and to forecast their impact on company activities.

In a large organization, this assignment might be the responsibility of a vice president in charge of research. In a small business, some technically trained man might handle the job along with other work. But in all cases the information should be immediately available to top management, since it will be a significant factor in planning.

A few generations ago scientific research was divided into fields of such narrow compass that a single scientist could be aware of all that was under way in his own area, could even peer over the fence for a comprehensive survey of what was going on in his neighbor's preserves. World War II research activity broadened the areas beyond the range of single intelligences. Vast literatures accumulated. Research teams were organized to probe all levels, from basic science to industrial technology. It became vital for a research-based company to know trends in research, its own position, and market repercussions.

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THE NEW AMERICAN WORKER

The gains of the worker through the past decades comprise a dramatic story. Here are the highlights.

The rise of the American worker in our generation is one of the great chapters of progress in the history of our industrial democracy. The growth has been not only in his earning power and his productivity, but, more importantly, in his civic and social influence in the community. As the machine and power tool reduce the drudgery of manual labor, so does it reduce the ranks of the unskilled. A suburban contractor asked to supply "day laborers" said with a cynical glint in his eye, "Our only unskilled laborers are executives." The American worker can no longer be easily identified or classified by income, residence, or educational opportunity. The cars in the factory parking lot tell a dramatic story.

FROM CORPORATE EXECUTIVE to farm laborer, today's American work force represents a provocative and concrete expression of our economy's dynamic changes through the past quarter century.

The average American, despite the steep rise in prices, could buy almost 53 per cent more last year than in 1929. Family income has more than tripled since 1918. The average worker today has fifteen to twenty hours more leisure time per week. Coverage under pension and welfare programs has increased twentyfold in just the past ten years.

These and hundreds of additional facts emerge from a comprehensive study recently issued by the U.S. Department of Labor. It contains in full scope the economic story of our national work force—now totalling over 64 million. In addition, it points toward the future problems—as well as the opportunities—that management will face. Here are the story's highlights:

Economic Status. The average factory worker is now better off, in terms of weekly earnings, than at any time in the history of the United States—and the progression shows no signs of coming to a halt.

Total disposable personal income in the United States—what's left us after Uncle Sam takes his slice—came to $269.2 billion in 1955. The figure for 1947 was $169 billion; for 1929, $83.1 billion. Divided equally among the population, the 1929 income would have given each person $682; for 1947, the amount would have been $1,173; and for 1955, $1,629. After adjusting the figures to the rise in consumer prices, we find that the average person in 1955 could buy almost 16 per cent more goods and services than in 1947, and almost 53 per cent more than in 1929.

Since 1939, the index of average weekly earnings, allowing for overtime, shot up from 100 to over 320. Again making cost of living adjustments, we get the following facts: A worker without dependents can buy a third more with his take-home pay than in 1939. With three dependents, he can buy 50 per cent more.

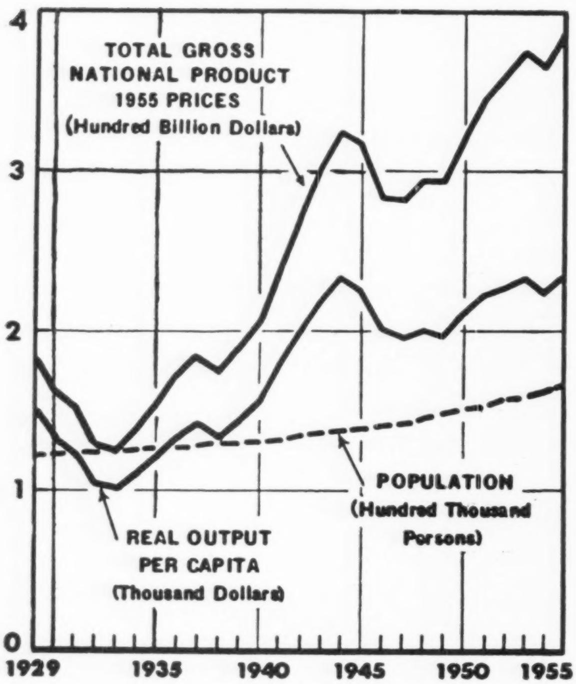
At the beginning of the century, the average family had to spend about 46 per cent of its income on food; by 1950 this had dropped to 32 per cent. And average dollar family incomes have grown as follows:

1918	$1,513
mid-30's	$1,524
1950	$3,900
1953	$4,700

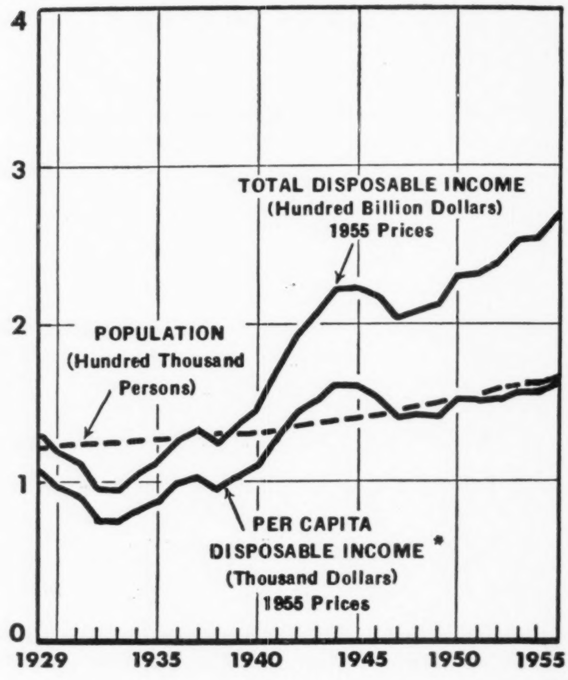
The distribution of wages has tended to narrow the difference between the higher and lower income groups. Arranging urban families of 1918 from those with the highest incomes to those with the lowest incomes, you find that only about two out of every hundred got $2,500 or more, and over half of them got less than $1,500. But by 1950 fewer than a tenth of these urban families were getting less than $1,500. Half of them were in the $3,000-$5,000 bracket, while an additional fifth were getting more than $5,000. As many as 43 out of 100 city families had incomes between $4,000 and $7,000 in 1953. In 1929 only fifteen out of 100 families were in a comparable middle-income range.

NATIONAL PRODUCT, POPULATION, AND REAL OUTPUT PER CAPITA

1924–1955



GROWTH OF DISPOSABLE INCOME AND POPULATION, 1924–1955



* Represents income of persons only less taxes.

Reasons for this shift include: more married women working; technological improvements calling for more highly skilled workers; graduated income taxes; and the stronger bargaining power of organized labor.

Education and Skills. In all sectors, the educational level of our work force is rapidly rising. More than 75 per cent of professional and kindred workers have some college education; more than half have completed college. Of sales and clerical workers, more than half have finished high school, and almost one-third have some college education.

Since 1910, the occupational distribution of the labor force has shown a marked change.

The proportion of farmers in 1950 was less than half that in 1910. Under the impetus of mechanization, much unskilled labor has joined the ranks of the semi-skilled. The semi-skilled factory worker group has expanded by 50 per cent, and the clerical and sales group has doubled.

Differentials in pay, according to skills, have decreased although every bracket has risen. This means that the lowest salaries have shown the biggest rise. While hourly wages have risen for both laborer and skilled worker (there is still an 81-cent difference), the gap, percentagewise, is now far smaller.

Fringe Benefits. Before World War II, the main issue at the bargaining table was increased wages. Since the end of the war, the significance of fringe benefits, as a factor in compensation, has increased every year. As a result, over a period of less than ten years, the number of workers covered by such programs as health and life insurance and pension plans has increased more than twentyfold. These supplements, including employers' contributions to Social Security, came close to $13 billion in 1955, or about 6 per cent of total employee compensation. The figure was about 1 per cent in 1929—and that was mostly for injuries.

More Leisure Time. This has been a major result of the new living standard. For instance, today's industrial worker has fifteen to twenty hours of more free time each week than his parents did, or roughly the equivalent of two working days.

Fewer Work Years. Compared to 50 years ago, more people enter the labor force at a later age; more retire earlier; and more live longer after retirement. The trend, over the years, has been toward the worker spending less of his life-span in working time.

The chief reasons for earlier retirement include the reluctance of employers to hire older persons, compulsory retirement, and increased Social Security benefits.

Physical health improvements have also contributed to increased retirement time. According to average figures available, in 1900 a man of 20 could expect to live 42 more years, the last three in retirement. In 1950 the same man could expect to live 49 more years and spend the last six in retirement.

This increase in the older-age group, both in numbers and as a percentage of the population, constitutes a growing problem. In 1900 there were some 13 million persons 45 or over; in 1950, almost 43 million; and in 1975, if the present rate continues, there will be nearly 65 million. From 1900 to 1950 the propor-

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CAN THE GAW CURE SEASONAL UNEMPLOYMENT?

EDWIN B. GEORGE, *Economist, Dun & Bradstreet, Inc.*

One of the chief arguments for the Guaranteed Annual Wage is that it will tend to reduce seasonal unemployment. But will it? And could the side effects of the cure be worse than the disease itself? Unions regard current SUB plans merely as the first step. What will happen if they succeed in taking companies all the way?

COLLECTIVE bargaining agreements in a number of large industries now embody some type of supplementary unemployment benefits. While the approved plans are far different from the sort of guaranteed annual wage proposed by several major CIO unions in the early 1950's, they are widely regarded as stepping stones to the original goals.

The unions pressing for GAW are much more nearly agreed about what has actually happened and what it implies than are their opponents.

It is true that union advocates differ on how far the agreements go and that some workers have been critical of some of the provisions. But, by and large, both leaders and followers seem fairly well satisfied. They concede (and even emphasize) that the immediate gains are modest, but this is only what they expected. In their pre-settlement propaganda they made it plain that the short-term goals were recognition of the principle and a package moderate enough to insure against possible bugs. Post-settlement propaganda has stressed this, and reiterated not only the intention to push forward to full-fledged GAW's, but confidence that these will confer great benefits on the community—notably significant flattening of the ups and downs of business cycles, substantial reduction in seasonal unemployment, a desirable change in the pace of technological innovation, and improvement in distribution of income.

The situation among opponents looks quite different. All still hold that full-blown GAW's of the species advocated by the Automobile Workers, the Steelworkers, and the AFL-CIO Electrical Workers would do more harm than good—at least in a system already enjoying high-level employment more or less continuously, and probably even in one with moderate fluctuations. But as to the sorts and sizes of GAW's in store for us, there is still sharp disagreement.

One basically opposed group seems reassured by the moderate character of the Ford and GM settlements. It treasures this moderation as evidence that the unions will settle ultimately for packages much smaller and more flexible than had been expected, and feels that in this event the result won't be very harmful, on balance might even be beneficial.

A second group of opponents finds no such easy comfort. Pre-negotiation propaganda having made it plain that labor would make liberal concessions to get a foot in the door, these critics had never expected large initial programs. The important facts, in their judgment, are that some major producers gave way at all and that some of the new schemes went so far. Their eyes remain focused on the goals set by the big industrial unions during the past decade and vigorously reaffirmed by the UAW after recent settlements. In the light of what has happened in such fields as pensions, they regard the first-round results as ominous and doubt whether the tide can be reversed even if the unions themselves lose enthusiasm.

Finally, a third group of opponents can be identified. It agrees with the pessimists that many unions are still resolved to attain full-scale GAW's. But its members are not ready to surrender. They do not think that the outcome in autos and steel need be labelled a defeat. They also point to the complete victory on the issue management scored in electrical equipment in 1955, and to the fact that at least one major alternative—the so-called income-security scheme, dealt with later in this article—came to the fore as a result of the 1955 dicussions. Since "income security" might meet whatever desirable objectives the unions are seeking through guarantees, members of the third group see improved prospects of returning the big package to its pre-1955 status of trading material. These things being so, they believe that continued efforts both to stiffen employers' resistance and to weaken union attachment to full-scale GAW's are still worthwhile.

The writer felt that the third group, whether or not justified in its opposition to full-scale guarantees, was right in thinking that there is still time to slow, halt, reverse, or divert the march toward them. Accordingly, he tried some time ago to anticipate and measure the extent to which the *mature* product would

serve the social ends in whose name it was being urged. The particular effect to be examined in this article is that on seasonal unemployment.

To dispel any possible confusion between the authentic guaranteed annual wage and the supplementary unemployment benefit plans so far hammered out at bargaining tables, a definition is in order.

"Mature GAW's"

A "mature GAW" is taken to be one that has attained full growth, perhaps a decade hence, in those fields on which it is now being or seems likely to be pressed—namely the consumer durable goods and (construction apart) capital goods industries. For reasons that, in the main, will be evident to those familiar with the unions' concept of full-scale guarantees, it has been assumed that GAW's would then cover the vast bulk of the workers in these fields; that the usual plan would give "eligible" laid-off workers jobless income approximating nine-tenths of pre-layoff earnings for periods up to one year, but that benefit rights would not be portable; that typical conditions of eligibility would, on balance, be more liberal than those now prevailing for unemployment insurance; that GAW would entail significant additional net cost to employers; that it would involve heavy reliance on reserve financing; and that there would be no government assistance beyond legislation or administrative action to permit integration of GAW and employment compensation.

GAW proponents have always listed an ability to cope with the "curse of seasonal unemployment" among the advantages of GAW's. Moreover, many have pushed this claim to the fore as confidence in our capacity to avoid serious business cycles has grown and as economists have begun more and more to doubt whether, on balance, GAW is a good way of dealing with such cyclical irregularity as may persist. Indeed the original advocate of GAW in mass production lines—Harold J. Ruttenberg, one-time research director of the Steelworkers—now appears to regard its expected impact on seasonal unemployment as the prime virtue of the device. His article, "Pay By The Year: Can the Unions Afford It?" in the December issue of *Harper's Magazine*, shows this clearly.

The conventional argument of GAW proponents runs about as follows: Seasonality in output characterizes many parts of the economy. Elimination of it is ordinarily quite desirable since it may produce large pools of idle labor even in prosperous times. Employers can often provide other highly productive work during off-seasons. If this is impossible, they have an obligation to take care of the problem through make-work devices or payment of jobless benefits since seasonal businesses profit from ready availability of workers for peak operations. Finally, it is argued that GAW will often be the most felicitous means of inducing firms to regularize work or—if this involves prohibitive costs—of insuring adequate income for the idle.

How Valid an Argument?

This line of reasoning commands more support than most of the claims made for GAW in a world of continuous high-level demand. It is accepted even by some whose general judgment on guarantees is unfavorable. It seems worthwhile to examine its credentials at some length in the case of hard goods industries, and it is most illuminating to cast our analysis in the form of answers to four questions:

1. How much physical scope exists for reduction of seasonal variations in employment in specific GAW target lines?
2. So far as scope exists, to what extent can it be exploited through full-scale guarantees in the assumed economic environment?
3. Would full-scale GAW's have adverse effects elsewhere large enough to lower efficiency in use of the country's resources?
4. If and insofar as full-scale guarantees have net beneficial effects on the economy as a whole, are there better and safer ways of achieving the benefits?

Scope for Reducing Swings

To our first question, the answer seems fairly clear: Not much. First of all, more often than not the hard goods industries either: (1) display no serious seasonal irregularity or (2)—regardless of management's attitude—do not present cases for which GAW is a good remedy.

Steel illustrates the former point. Apart from a Summer trough traceable to vacations and weather, neither the industry as a whole nor most of its segments show much seasonality in output. Much the same is true of aluminum, petroleum products, many lines of electrical and non-electrical machinery, and—among consumer durables—household furniture and a number of fabricated metal products.

Basic Resistance

Construction and coal mining, on the other hand, exhibit rather sharp seasonal fluctuations. They are, in fact, among the most seasonal lines in the nonfarm economy. But here the second point applies. Not only is there little scope for economical improvement in job stability at present, but if the unions have their way whatever can be done will not be done through GAW.

On the record, the Mineworkers regard an annual wage as a route to bureaucratic rule over the economic system and, in addition, openly question whether it could be put into effect in any large district.

Among workers in the building trades, opposition rests principally upon the unwillingness of craftsmen to waive craft rules and other prerogatives. Usually this would debar not only complementary operations involving "different" work but even any effort to smooth work schedules within construction itself. Such resistance, plus technical difficulties, limits the usefulness of GAW in this field and in all likelihood will continue to do so indefinitely. As has been noted by the AFL's Research Director, Boris Shiskin, in an Industrial Relations Research Association publication, the few GAW's instituted for building trades workers have been found to be "impractical and uneconomic" even "when undertaken under the best conditions obtainable, such as large-scale housing projects."

What of the remaining fields—notably farm equipment, a number of household appliances, some kinds of electrical and non-electrical machinery and autos? These all represent cases in which the unions are minded to press strongly for GAW's, and each shows marked intra-yearly swings in *output*. Our interest, however, lies in seasonal *unemployment*, and the data suggest that this is seldom great.

continued on page 125

FOURTEEN IMPORTANT RATIOS

IN 36 MANUFACTURING LINES

Reflecting changes in business conditions, as well as varying degrees of efficiency, these unique ratios help the business man to compare his company's operations with those of his competitors. The ratios have been compiled annually for a quarter-century under the direction of Roy A. Foulke, vice president of Dun & Bradstreet, Inc.

Some comments about the manufacturing ratios and the definitions of terms appear on page 67. Similar ratios for wholesalers appeared in the November issue of DUN'S REVIEW AND MODERN INDUSTRY, the ratios for retailers in October.

Line of Business (and Number of Reporting Concerns)	Current Assets to Current Debt	Net Profits on Net Sales	Net Profits on Tangible Net Worth	Net Profits on Net Wkg. Cap.	Net Sales to Tangible Net Worth	Net Sales to Net Working Capital	Average Collection Period	Net Sales to Inventory	Fixed Assets to Tangible Net Worth	Current Debt to Tangible Net Worth	Total Debt to Tangible Net Worth	Inventory to Net Working Capital	Current Debt to Inventory	Funded Debts to Net Wkg. Capital
	Times	Per Cent	Per Cent	Per Cent	Times	Times	Days	Times	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
FOR 36 MANUFACTURING LINES—1955—MEDIANS AND QUARTILES														
	2.17	4.11	15.35	21.64	4.39	9.65	27	8.2	24.7	38.2	49.8	73.3	79.3	4.8
Airplane Parts and Accessories (34)	**1.72**	**1.54**	**4.34**	**9.43**	**2.80**	**5.78**	**39**	**6.4**	**37.2**	**64.6**	**81.0**	**120.0**	**99.5**	**41.6**
	1.41	3.04†	6.23†	12.03†	2.30	3.96	52	3.9	70.4	117.8	160.3	185.3	146.0	58.7
	3.32	5.88	16.60	31.13	3.64	7.03	29	9.2	28.6	26.5	40.7	62.0	57.4	12.4
Automobile Parts and Accessories (70)	**2.50**	**3.80**	**12.40**	**18.30**	**2.73**	**4.60**	**33**	**6.1**	**41.0**	**40.3**	**62.0**	**77.5**	**83.6**	**28.2**
	2.09	2.40	6.44	11.43	2.20	3.47	43	4.5	52.5	51.9	82.5	105.0	119.1	50.3
	3.25	2.72	12.54	56.13	5.93	29.67	7	42.0	65.1	21.1	31.5	46.3	108.4	24.3
Bakers (35)	**1.72**	**1.53**	**7.60**	**32.52**	**4.96**	**15.85**	**10**	**31.2**	**77.6**	**30.0**	**45.9**	**84.0**	**203.7**	**74.3**
	0.91	0.11	0.39	19.44	3.66	11.99	12	19.8	93.0	48.6	73.6	118.4	323.3	147.5
	6.01	4.14	11.07	17.40	4.37	6.76	29	13.6	17.4	12.9	33.0	46.5	36.7	11.6
Bedsprings and Mattresses (63)	**3.41**	**2.61**	**7.49**	**12.75**	**3.30**	**5.45**	**40**	**8.1**	**26.9**	**26.1**	**50.2**	**62.0**	**65.9**	**20.9**
	2.48	1.12	4.27	7.56	2.27	3.89	51	6.5	38.4	40.7	61.0	81.9	105.8	49.2
	4.02	6.38	17.89	38.17	4.07	10.72	22	9.4	36.2	17.3	40.3	51.8	51.3	14.0
Bolts, Screws, Nuts, and Nails (57)	**2.74**	**3.43**	**10.71**	**21.43**	**2.56**	**4.78**	**29**	**6.5**	**51.7**	**32.5**	**62.2**	**76.4**	**77.2**	**43.9**
	1.88	2.21	5.26	10.50	1.97	3.70	37	5.2	71.9	45.6	113.7	107.5	110.6	115.6
	3.02	5.36	15.09	51.58	3.00	14.61	13	24.0	57.1	15.4	27.5	33.9	94.2	19.8
Breweries (41)	**2.20**	**1.52**	**3.19**	**9.60**	**2.51**	**9.99**	**20**	**18.8**	**76.0**	**23.4**	**40.9**	**50.0**	**175.3**	**60.3**
	1.58	0.42†	0.79†	1.09†	1.09	5.99	41	10.7	94.6	31.5	56.1	79.6	215.9	102.1
	3.09	8.58	15.85	39.84	3.14	6.77	28	11.3	35.1	24.8	49.5	45.2	73.5	21.6
Chemicals, Industrial (65)	**2.50**	**6.04**	**12.49**	**26.07**	**1.96**	**3.87**	**39**	**7.7**	**59.7**	**35.5**	**65.2**	**64.0**	**114.9**	**43.5**
	1.69	3.59	6.80	16.07	1.44	2.97	46	6.0	75.7	59.2	79.8	84.9	178.2	99.6
	3.52	2.10	7.99	9.37	6.05	6.90	20	7.4	2.7	35.3	67.4	58.8	54.2	8.9
Clothing, Men's and Boys' (199)	**2.39**	**1.14**	**4.50**	**4.98**	**4.31**	**4.96**	**46**	**5.6**	**7.9**	**64.6**	**123.8**	**89.4**	**80.1**	**23.3**
	1.69	0.15	0.63	0.75	2.91	3.37	62	4.4	15.3	122.6	224.8	121.5	133.7	45.5
	2.83	2.33	11.83	18.32	9.23	13.26	22	18.4	2.6	42.4	44.9	43.6	86.3	9.0
Coats and Suits, Women's (77)	**2.00**	**1.12**	**7.55**	**9.61**	**5.18**	**5.72**	**28**	**11.5**	**6.9**	**75.6**	**95.0**	**81.0**	**118.8**	**32.3**
	1.51	0.39	2.26	2.47	3.87	4.63	48	7.2	14.6	167.4	231.0	141.4	192.0	42.4
	5.03	4.97	11.31	31.02	3.53	8.03	9	8.0	29.2	15.1	28.7	46.6	39.1	31.7
Confectionery (43)	**2.97**	**1.66**	**4.82**	**7.53**	**2.93**	**6.27**	**17**	**6.3**	**41.0**	**24.3**	**49.8**	**75.1**	**61.9**	**44.9**
	2.05	0.14†	0.42†	0.95†	2.39	4.02	25	4.0	59.4	34.7	55.6	107.5	105.3	62.5
	2.92	2.64	14.81	24.45	10.50	16.89			10.7	28.7	55.9			6.7
Contractors, Building and Construction (133)	**1.87**	**1.52**	**8.80**	**13.83**	**6.09**	**10.37**	**	**	**21.7**	**59.9**	**106.3**	**	**	**21.9**
	1.35	0.51	3.40	6.05	3.21	5.59			38.3	149.8	218.9			85.9
	3.49	4.28	16.63	17.17	5.23	8.63			6.2	33.0	35.6			4.1
Contractors, Electrical (42)	**2.54**	**1.73**	**9.37**	**12.54**	**4.35**	**6.08**	**	**	**14.8**	**48.3**	**79.6**	**	**	**23.1**
	1.75	0.65	3.04	4.01	2.54	3.67			29.0	89.1	115.0			68.3
	5.74	3.87	6.94	14.71	3.38	6.81	14	7.2	37.8	12.8	22.4	56.9	26.5	20.0
Cotton Cloth Mills (46)	**4.16**	**2.71**	**5.47**	**10.65**	**2.25**	**4.66**	**34**	**5.2**	**51.8**	**18.9**	**59.2**	**78.8**	**46.7**	**37.1**
	2.46	1.80	4.04	6.62	1.68	3.02	43	2.9	65.8	33.7	89.0	112.9	68.0	79.7
	6.05	1.90	9.25	8.92	8.04	7.26	39	7.7	0.8	18.3	...	51.6	39.4	...
Cotton Goods, Converters, Non-Factored (48)	**2.67**	**1.06**	**4.98**	**5.33**	**4.28**	**4.16**	**58**	**6.1**	**1.7**	**55.1**	...	**76.5**	**103.4**	...
	1.65	0.48	1.59	1.54	2.57	2.34	66	4.6	3.8	153.1	...	105.9	135.5	...
	3.01	0.80	9.76	10.76	16.29	20.40	24	42.7	4.5	41.1	43.9	44.7	98.9	25.7
Dresses, Rayon, Silk, and Acetate (89)	**1.82**	**0.43**	**4.22**	**5.16**	**11.78**	**13.12**	**33**	**23.0**	**9.1**	**94.2**	**157.7**	**71.4**	**168.0**	**30.8**
	1.53	0.06†	0.50†	0.56†	7.29	7.99	43	13.3	16.4	162.9	186.6	109.8	250.0	45.7
	4.96	11.44	24.87	38.14	2.56	3.79	33	7.5	25.2	19.6	43.2	43.5	53.3	24.2
Drugs (42)	**3.02**	**8.72**	**15.25**	**27.50**	**2.01**	**3.13**	**41**	**5.9**	**39.2**	**28.5**	**59.4**	**59.2**	**79.4**	**39.8**
	2.53	3.50	8.42	15.76	1.32	2.37	53	3.6	51.8	39.6	75.0	76.6	111.7	67.2
	3.43	5.82	19.14	37.37	3.60	5.69	34	6.6	21.9	28.5	43.9	60.6	53.6	6.3
Electrical Parts and Supplies (75)	**2.58**	**4.13**	**11.43**	**17.41**	**2.79**	**4.65**	**42**	**4.7**	**32.5**	**41.6**	**66.4**	**83.4**	**77.8**	**25.2**
	1.91	1.67	5.47	7.70	2.03	3.06	52	3.6	48.4	62.3	84.9	108.3	111.5	34.4

14 important ratios IN 36 MANUFACTURING LINES

Line of Business (and Number of Reporting Concerns)	Current Assets to Current Debt	Net Profits on Net Sales	Net Profits on Tangible Net Worth	Net Profits on Net Wkg. Cap.	Net Sales to Tangible Net Worth	Net Sales to Net Working Capital	Average Collection Period	Net Sales to Inventory	Fixed Assets to Tangible Net Worth	Current Debt to Tangible Net Worth	Total Debt to Tangible Net Worth	Inventory to Net Working Capital	Current Debt to Inventory	Funded Debts to Net Wkg. Capital
	Times	Per Cent	Per Cent	Per Cent	Times	Times	Days	Times	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
FOR 36 MANUFACTURING LINES—1955—MEDIANS AND QUARTILES														
	3.97	5.81	13.95	32.90	3.43	7.36	34	11.9	32.2	18.6	39.4	33.5	67.1	14.2
Foundries (108)	**2.82**	**4.17**	**9.34**	**18.10**	**2.48**	**4.98**	**42**	**8.1**	**46.3**	**26.7**	**51.9**	**55.9**	**98.5**	**35.4**
	2.19	2.03	5.18	10.31	1.82	3.31	51	5.5	60.5	39.2	76.1	81.2	177.7	75.5
	5.31	4.91	14.34	25.09	4.27	6.99	37	10.0	18.2	16.5	34.1	48.3	48.2	5.3
Furniture (144)	**3.12**	**2.88**	**10.38**	**15.32**	**3.25**	**5.29**	**43**	**8.1**	**32.5**	**30.6**	**57.7**	**67.5**	**75.2**	**28.0**
	2.13	1.29	4.28	6.85	2.60	3.80	52	5.0	45.3	52.8	98.9	95.4	114.6	37.4
	4.82	7.35	15.15	28.01	2.44	6.07	30	7.2	24.8	17.7	36.1	61.6	38.5	14.1
Hardware and Tools (95)	**3.44**	**5.88**	**12.12**	**18.68**	**2.06**	**2.95**	**37**	**4.2**	**33.6**	**29.2**	**46.9**	**79.6**	**59.8**	**19.8**
	2.37	3.59	7.34	11.35	1.60	2.40	44	3.0	49.7	40.2	76.9	97.2	94.7	39.8
	5.75	3.31	7.46	19.12	3.25	8.54	26	9.7	38.3	10.1	31.2	51.9	35.3	13.5
Hosiery (73)	**3.32**	**1.68**	**3.97**	**11.16**	**2.21**	**4.85**	**34**	**5.8**	**49.6**	**23.3**	**49.7**	**79.4**	**56.5**	**41.0**
	1.82	0.25	0.83	2.07	1.40	3.06	40	4.6	65.9	55.7	81.3	119.4	104.5	60.2
	4.24	6.01	14.27	28.80	3.02	7.76	30	14.1	30.4	18.9	44.6	40.8	56.2	15.4
Machine Shops (146)	**2.90**	**3.25**	**7.05**	**13.91**	**2.07**	**3.82**	**38**	**5.8**	**42.8**	**28.7**	**65.4**	**70.6**	**88.1**	**30.0**
	1.88	1.47	3.67	7.29	1.64	2.62	49	3.9	61.2	49.9	85.2	101.7	178.4	64.0
	3.78	5.84	13.70	23.19	3.39	5.90	36	6.9	22.5	24.1	43.0	55.5	50.9	11.6
Machinery, Industrial (360)	**2.80**	**3.38**	**8.66**	**14.05**	**2.51**	**3.72**	**48**	**4.6**	**34.4**	**37.1**	**65.5**	**76.1**	**77.2**	**24.6**
	2.09	1.69	3.89	5.85	1.81	2.73	63	3.5	47.1	57.1	100.9	101.1	109.5	48.8
	2.85	1.50	12.82	29.23	10.48	33.50	9	43.4	41.0	24.0	43.4	39.5	73.6	26.5
Meats and Provisions, Packers (71)	**2.13**	**1.04**	**7.80**	**18.10**	**8.05**	**16.61**	**12**	**25.6**	**57.7**	**34.0**	**70.9**	**73.0**	**112.3**	**45.7**
	1.56	0.64	5.50	13.04	5.69	13.10	15	20.6	70.7	54.2	102.8	100.4	178.6	86.5
	4.26	6.16	15.46	38.41	4.06	11.14	27	11.0	27.8	19.5	47.0	47.9	61.2	21.6
Metal Stampings (85)	**2.62**	**3.37**	**10.18**	**20.92**	**2.73**	**5.83**	**35**	**7.1**	**42.8**	**31.3**	**63.7**	**70.5**	**88.4**	**34.4**
	1.91	1.02	3.77	6.92	1.93	4.32	43	5.5	67.6	49.3	98.0	105.9	112.7	68.1
	4.38	3.20	15.54	31.88	6.33	11.18	22	16.7	3.8	23.7	52.5	37.7	66.6	3.4
Outerwear, Knitted (62)	**2.12**	**1.58**	**6.46**	**10.81**	**4.51**	**7.32**	**35**	**7.6**	**14.5**	**58.8**	**78.6**	**68.3**	**98.7**	**19.7**
	1.56	0.06	0.75	3.77	2.99	4.23	45	3.4	33.3	113.5	126.7	114.0	171.9	34.3
	5.55	2.55	10.79	14.17	3.91	5.12	28	4.6	9.9	17.9	47.0	70.8	28.5	85.6
Overalls and Work Clothing (48)	**2.86**	**1.56**	**5.59**	**6.90**	**3.60**	**4.09**	**43**	**4.3**	**15.3**	**42.7**	**79.3**	**92.6**	**57.1**	**27.8**
	2.16	0.98	3.13	4.90	2.42	3.10	50	4.0	22.4	72.6	111.9	116.5	80.4	18.8
	5.18	4.21	13.88	25.63	3.19	6.16	21	8.4	22.2	15.5	31.8	52.3	44.1	10.1
Paints, Varnishes and Lacquers (134)	**3.20**	**2.46**	**6.58**	**11.02**	**2.58**	**4.54**	**34**	**5.6**	**32.0**	**27.6**	**49.3**	**69.4**	**75.2**	**21.3**
	2.18	1.44	3.72	5.24	2.05	3.58	41	4.5	45.1	41.9	72.7	99.5	104.8	33.6
	3.01	8.92	13.04	43.98	2.35	6.33	23	9.6	62.5	17.5	35.1	54.9	74.0	33.5
Paper (60)	**2.46**	**6.81**	**10.76**	**30.36**	**1.73**	**4.98**	**29**	**7.6**	**71.6**	**25.8**	**51.2**	**70.9**	**100.6**	**63.1**
	1.91	4.29	7.78	22.23	1.27	4.10	33	6.0	86.5	34.1	64.6	103.8	135.2	108.9
	4.19	6.68	15.54	50.24	2.98	9.97	24	15.7	37.8	15.7	43.2	41.0	66.3	34.9
Paper Boxes (64)	**2.66**	**5.04**	**12.17**	**27.48**	**2.39**	**6.17**	**27**	**9.4**	**55.6**	**26.8**	**55.1**	**72.5**	**101.6**	**66.9**
	1.88	1.77	7.54	17.38	1.86	4.90	31	7.4	77.3	41.1	84.1	103.6	138.4	100.1
	2.86	12.03	16.04	68.49	2.07	9.33	26	11.4	57.7	15.0	29.4	45.9	91.7	23.9
Petroleum, Integrated Operators (38)	**2.14**	**8.59**	**12.17**	**48.00**	**1.26**	**6.02**	**36**	**9.4**	**83.6**	**21.3**	**45.0**	**68.3**	**131.4**	**82.9**
	1.65	6.45	9.87	27.58	1.02	3.88	42	7.5	100.4	31.4	70.4	99.4	188.4	154.0
	3.10	4.73	13.13	31.41	3.37	9.76	34		32.7	22.1	34.2			17.9
Printers, Job (62)	**2.44**	**2.84**	**9.26**	**19.53**	**2.61**	**6.51**	**38**	‡	**48.9**	**30.7**	**55.3**	‡	‡	**33.8**
	1.74	1.64	4.03	9.05	2.16	4.22	49		73.1	46.9	72.4			72.5
	4.02	2.20	10.41	10.34	6.60	9.41	30	9.1	2.5	28.0	54.1	63.7	49.1	4.0
Shirts, Underwear and Pajamas, Men's (57)	**2.15**	**1.29**	**4.47**	**6.47**	**4.51**	**5.91**	**50**	**5.9**	**8.5**	**57.8**	**82.4**	**94.1**	**71.0**	**17.5**
	1.78	0.51	1.20	1.58	3.37	3.74	59	4.0	13.9	103.5	168.5	139.9	122.6	26.6
	3.50	3.63	14.49	15.46	5.54	7.35	32	8.1	12.7	32.2	51.0	62.3	50.2	10.8
Shoes, Men's, Women's, and Children's (106)	**2.51**	**2.36**	**8.56**	**9.88**	**3.60**	**3.99**	**44**	**4.9**	**17.3**	**48.7**	**73.7**	**81.2**	**74.4**	**22.6**
	1.96	0.75	3.31	4.52	2.56	3.01	54	3.9	26.7	79.1	112.5	118.3	113.9	37.2
	5.36	4.94	19.18	39.26	5.88	11.42	31	10.2	19.8	17.8	57.3	45.7	51.4	11.1
Steel, Structural Fabricators (Sell on Short Terms) (74)	**2.79**	**3.39**	**11.83**	**19.30**	**3.50**	**5.15**	**48**	**6.7**	**35.1**	**32.7**	**77.4**	**75.2**	**72.1**	**26.2**
	1.89	1.95	7.06	10.73	2.37	3.51	62	4.3	44.8	65.7	100.8	110.6	105.0	44.9
	3.90	5.63	14.65	20.92	3.36	5.15	27	6.2	19.2	23.8	29.6	54.8	46.5	6.1
Stoves, Ranges, and Ovens (55)	**2.99**	**3.03**	**7.88**	**12.15**	**2.94**	**4.15**	**43**	**5.0**	**31.8**	**35.5**	**51.4**	**76.4**	**64.0**	**28.6**
	2.45	0.96	2.27	3.89	1.99	3.01	53	3.6	49.8	44.5	67.1	103.1	101.6	31.2
INDUSTRIAL MACHINERY MANUFACTURERS—BY SIZE (TANGIBLE NET WORTH) CLASSES—MEDIANS ONLY														
Under $200,000	**2.04**	**2.26**	**6.88**	**11.36**	**4.37**	**7.42**	**39**	**6.4**	**36.7**	**61.4**	**136.3**	**108.9**	**88.0**	**59.5**
1955 **$200,000-$500,000**	**2.58**	**2.02**	**6.18**	**8.77**	**2.59**	**3.73**	**44**	**5.2**	**28.5**	**38.4**	**60.5**	**68.3**	**78.7**	**20.6**
Over $500,000	**2.86**	**4.05**	**9.48**	**15.32**	**2.29**	**3.47**	**52**	**4.3**	**36.0**	**35.3**	**60.3**	**76.6**	**73.5**	**25.7**

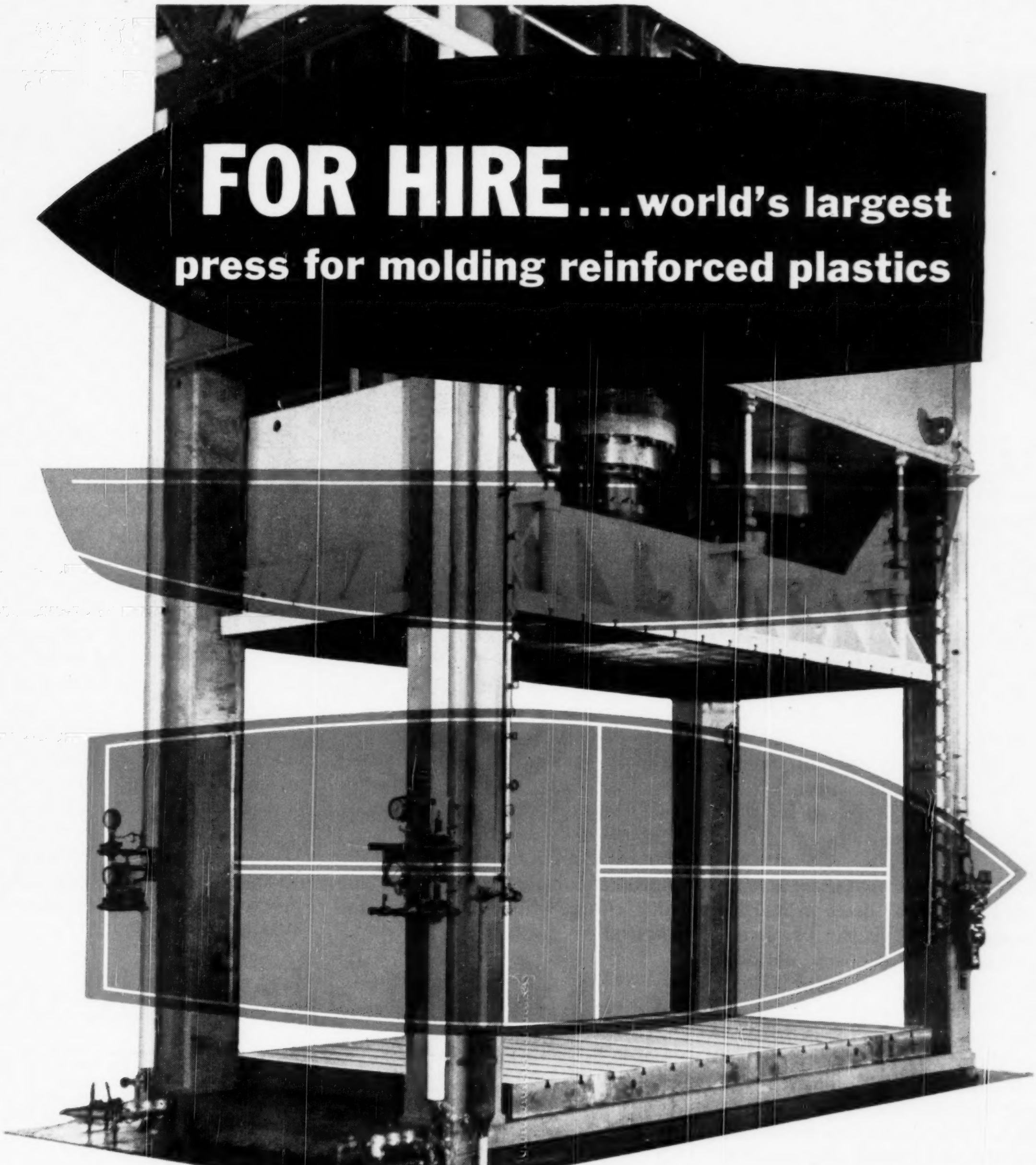
FOOTNOTES

†Loss.

**Building and construction contractors and electrical contractors do not have inventories in the credit sense of the term. They carry only such materials as lumber, bricks, tile, cement, structural steel, and building equipment to complete jobs on which they are working. Electrical contractors carry electrical equipment and supplies to complete particular jobs on which they are working. Concerns operating in these lines generally have no customary selling terms, each contract being a special job for which individual terms are arranged.

‡Job printers do not have inventories in the credit sense of the term. They carry only current supplies such as paper, ink, binding materials, and lead for typesetting.

Definition of terms will be found on page 67



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WHERE THE NEWER KEY INDUSTRIAL MARKETS ARE MAKING THEIR APPEARANCE

Here's a complete list of all the newer key industrial markets. You can use it in planning your sales to industry.

THOMAS KENNY, *Marketing Editor*

HERE'S FURTHER significant information for industrial marketers, drawn from the new U.S. Census of Manufactures. Listed in the table below are sixteen more key industrial markets. These are additional to the 90 described in our August 1956 issue, page 52.

Most of these newer markets were too small to show up as key industrial markets when the 1947 Census was taken. A key industrial market accounts for at least one-tenth of 1 per cent of the national total in dollar value added by manufacture.

Since they were too small for the 1947 key market study (MODERN INDUSTRY, September 15, 1949, page 38), they were not included in the later study that was done primarily to compare growth in the key markets between the Census periods 1947–1954. The original list of 90 key markets was developed by the U.S. Department of Commerce in 1949.

Since then there have been sizable shifts in industry, with growth developing in the South and West. Two states that had no key industrial markets before—Florida and Arizona—now have four between them: Tampa, Miami, Jacksonville, and Phoenix. The largest gain of all the newer key markets was scored by Miami, which nearly tripled its industry between 1947 and 1954.

Although the Miami plants are predominantly small, they spent nearly $10 million for capital goods in 1954 and even more last year. Only 30 of the 1,242 plants employed as many as 100 workers. This amounted to about 2 per cent, compared with the national rate of 9 per cent.

Another state that is becoming increasingly important industrially is California, which added three new key industrial markets—San Bernardino, San Diego, and Fresno. Also on the West Coast, Washington now has two key markets with the addition of Spokane. With the growth of Galveston, Texas accounts for three.

As the table below indicates, all but two of the newer key industrial markets were well above the growth rate—56 per cent—for the nation as a whole from 1947 to 1954.

Together with the 90 industrial markets, they account for over 80 per cent of all manufacturing in the nation. If your product has a wide application in industry, this market guide will enable you to pinpoint your best prospects and focus your selling efforts where buyers are concentrated.

Value added by manufacture is used as the measure of the importance of key industrial markets. The U. S. Bureau of the Census considers it the most reliable gage. It avoids the duplication that results from the use of products of some plants as materials by others. Value added by manufacture is the value of shipments less the cost of materials, supplies, fuel, electric energy, and contract work.

Reprints of the August article, revised to remove estimates, are still available for 25 cents each. You can get a complete list of all the subjects covered in the new U. S. Census of Manufactures, along with a schedule of when they will be ready, by writing to the Bureau of the Census, Washington 25, D. C. —T. K.

THESE SMALLER AREAS ARE NOW KEY MARKETS

	(See footnotes)	Number of Plants	Number of Employees (Thousands)	Value Added by Mfg. ($ Million)	Value Added as % of U.S. Total	% Gain in Value Added 1947-1954
POUGHKEEPSIE	A	575	39.7	265.8	0.22	104.4
SAN BERNARDINO	B	580	23.5	246.3	0.21	92.0
SAN DIEGO	C	598	48.1	223.1	0.19	119.7
BENTON HARBOR	D	294	21.0	177.1	0.15	97.2
ANN ARBOR	E	194	21.0	171.8	0.15	42.8
MANSFIELD	F	164	19.7	163.0	0.14	37.6
AUGUSTA	G	175	27.9	153.9	0.13	172.7
GALVESTON	H	87	10.9	152.7	0.13	113.9
NEW LONDON	I	286	22.6	146.3	0.12	84.4
TAMPA	J	761	22.9	140.3	0.12	105.9
SPOKANE	K	331	14.1	139.8	0.12	94.2
MARTINSVILLE	L	81	8.3	138.1	0.11	192.6
MIAMI	M	1242	23.3	133.5	0.11	193.3
JACKSONVILLE	N	424	17.2	124.9	0.10	87.2
FRESNO	O	388	12.7	115.7	0.10	102.0
PHOENIX	P	463	15.7	114.4	0.10	188.5

A. Orange, Dutchess Counties, N.Y.; B. San Bernardino, Riverside Counties, Cal.; C. San Diego County, Cal.; D. Berrien County, Mich.; E. Washtenaw County, Mich.; F. Richland County, Ohio; G. Richmond County, Ga., Aiken County, S.C.; H. Galveston County, Texas; I. New London County, Conn.; J. Hillsborough, Pinellas Counties, Fla.; K. Spokane County, Wash.; L. Henry County, Pa.; M. Dade County, Fla.; N. Duval County, Fla.; O. Fresno County, Cal.; P. Maricopa County, Ariz.

HYDRAULICS
AT WORK

Operator feeds abrasive mixes into a Multipress hopper, the first step in fabrication of Carborundum abrasive parts.

Molding the "Daily Grind"

How Carborundum increased production of abrasive stones and wheels 50% and more after switching to Denison Multipress®

• Using a hydraulic press to mold abrasive grinding wheels and stones at first sounds like a costly way to perform the job. But The Carborundum Company has found that the method greatly increases production and cuts costs sharply over conventional hand-molding.

When Denison hydraulic Multipresses were installed to handle the work, production went up 50%. On pieces requiring molding and cutting, this increase was 100% and more.

And most important of all . . . there is no downtime of equipment from abrasive dust, assuring continuous, uninterrupted production.

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Let Denison's skilled engineers show you how hydraulic power can chart a new course in production savings and efficiency for your company. Write The Denison Engineering Division, American Brake Shoe Co., 1162 Dublin Road, Columbus 16, Ohio.

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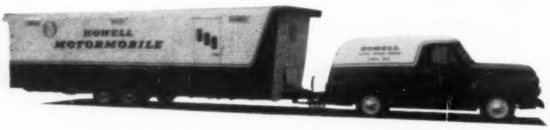
. . . and sold themselves on a superior brake motor



Visitors to the Howell Motormobile are intrigued by the Howell brake motor that's shown in operation. They push a button, watch the braking action through a plastic window and note that the motor shaft stops dead in the space of a watch tick. While the shaft is kept from turning until the motor is re-energized, a manual release permits re-indexing, an important safety feature on many machines.

Someone in the group always gets down to the design details of the separate brake mechanism displayed. Which is our cue to show them the easy adjustment for wear that is built in . . . and the fact that the Howell disc brake takes less space than any other mechanical brake. That's because it is inherently more compact and because its wrap-around cover requires no end space for removal.

You might suppose that only machine designers or maintenance men would study such details. On the contrary, company executives and operating personnel of every rank show real interest. Perhaps it's the *ideas* in action that stimulate their interest.

Whatever the Motormobile's attraction, we've been pleased with the number of concerns that have become Howell customers this last year through contacts made this way. We hope you see the Motormobile in '56 . . . but if it isn't scheduled for your locality, let us tell you about Howell industrial motors. For information on practically any type, fractional through 300 horsepower, write Howell Electric Motors Co., Howell, Mich.

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Automation simplified

LET ERMA DO IT *by David O. Woodbury. Harcourt, Brace and Company, 383 Madison Avenue, New York 17, N.Y., 305 pages, $5.*

Some computers predict elections, but ERMA (Electronic Recording Machine—Accounting) is stupider than most of her sisters; she merely handles checks and withdrawals from a bank, and expects to learn to handle deposits. Because ERMA is considered an "idiot" among mechanical brains, she offers a good point of departure for a simplified explanation of "The Full Story of Automation," as this book is subtitled. If not quite that, it is an excellent text for the non-mathematical reader who would like to catch up on automation and understand how computers work. Helpful diagrams are included.

Decentralized management

NEW FRONTIERS FOR PROFESSIONAL MANAGERS *by Ralph J. Cordiner. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, N.Y., 121 pages, $2.75.*

Mr. Cordiner, president of General Electric, has written a book based on a series of lectures he gave as part of the McKinsey Foundation Lecture Series at the graduate school of business, Columbia University.

A firm advocate of corporate decentralization, he sets down the principles that have guided GE in its program, describes the structure that has evolved and the methods of measuring results in decentralized divisions.

"A significant feature of this organization," he writes, "is that it has no place for 'assistants,' 'assistants to,' or 'administrative assistants.' It is our firm belief that such titles or positions create confusion as to responsibility, authority, and accountability, and tend to retard the growth of men and the company. If a position is too big for one person and appears to require assistants, then the work should be divided up and reorganized."

Job efficiency

WORK, WORKERS, AND WORK MEASUREMENT *by Adam Abruzzi. Columbia University Press, 2960 Broadway, New York 27, N.Y., 318 pages, $7.50.*

Although technical and designed for the industrial engineer, this book presents some conclusions of concern to general management, notably that "time study must be made essentially independent of rate setting if it is to perform the basic function of estimating production rates." Output incentives, the author points out, do raise production in many cases, but they also "make sure that production will never go up too far."

The core of Dr. Abruzzi's book is a "new theory of work." The unsystematic motions that the industrial engineers attempt to prevent, he says, are often integral components of the production activity and cannot be eliminated without disturbing more systematic activity.

"This fundamental fact," he states, has not been recognized "because

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Sylvania Electric Products, Inc.

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Iowa's mid-continent location, its proximity to major market areas and the high caliber of its working force were three important reasons why Sylvania chose to locate in Iowa. If you're planning a move, find out about Iowa and the many advantages it offers industry. For information on Iowa's labor force, transportation facilities and available plant sites write to the Iowa Development Commission.

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of . . . blind insistence that there is but 'one best way' of doing work."

Company financing

NEW MONEY FOR BUSINESS *by George J. Leness, Gillette K. Martin, Roger T. Gilmartin, and Merlyn S. Pitzele. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, N.Y., 153 pages, $15.*

In explaining the techniques of long-term corporate financing, the authors lay primary stress on the sales of securities. Writing for the managers of medium-sized businesses rather than for the financial experts of giant corporations, they explain the mechanics of financing in layman's language. Included are discussions of preliminary negotiations with underwriters, terms of security issues, and expenses and fees. One chapter is devoted to sales of blocks of outstanding securities.

The book is one of the McGraw-Hill series of "consultant reports." Messrs. Leness, Martin, and Gilmartin are members of the underwriting department of Merrill Lynch, Pierce, Fenner & Beane. Mr. Pitzele is a McGraw-Hill editor.

Labor background

THE PRACTICE OF UNIONISM *by Jack Barbash. Harper & Brothers, 49 East 33rd Street, New York 16, N.Y., 465 pages, $5.*

The labor movement today is a highly complex organism, and understanding of new developments necessitates a good deal of background knowledge.

To a large extent this book supplies the facts. It explains how unions are organized, how they are governed, how a strike is managed, how the collective bargaining process operates, and analyzes issues currently in the foreground. Even the experienced labor relations man may find points of interest in the comments on labor strategy and tactics.

Although Mr. Barbash, who has been a union staff member, might well be characterized as "pro-union," his approach is, for the most part, factual and objective.

Union unity

AFL-CIO LABOR UNITED *by Arthur J. Goldberg. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, N.Y., 319 pages, $5.*

Mr. Goldberg, general counsel for

the CIO before it merged with the AFL, was the principal author of the merger plan. He has written a factual account of the division between the two labor groups and the steps leading up to the union.

Texts of the merged organization's constitution, the no-raiding agreements, and similar documents are given in appendices.

Color as a sales aid

SELLING COLOR TO PEOPLE *by Faber Birren. University Books, Inc., 404 Fourth Avenue, New York 16, N.Y., 219 pages, $7.50.*

New Englanders like their window shades reddish brown. Baltimore residents prefer blue. In Pittsburgh and Chicago, people want plain white. Green is not popular for children's clothes; but bright green enamel sells better than blue or pink. In the 1920's most American living rooms were styled in rust or green; in the 30's, in burgundy or royal blue; in the 40's, greens, tans, and browns staged a comeback; but today, in the prosperous 50's, home decorators like the colors popular in the 30's.

Mr. Birren, who is a top authority on commercial uses of color, here presents these and other data on color research and what it has shown about the effect of colors on sales.

Business men look back

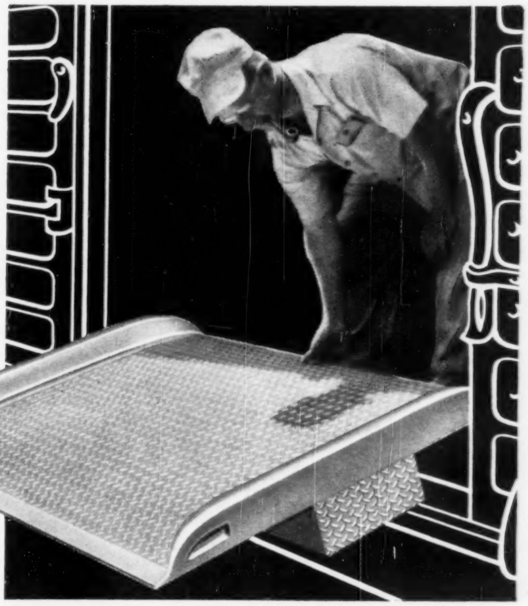
OVER MY SHOULDER *by Clarence B. Randall. Little Brown and Company, 60 East 42nd Street, New York 17, N.Y., 248 pages, $3.50.*

Mr. Randall, former president of Inland Steel, has made a second career for himself as a writer, unassisted by ghosts. His latest book is an absorbing collection of informal reminiscences, dealing with a diversity of subjects—from hunting partridges to the night "he gave Harry hell" during the 1952 steel strike.

ALL OUT OF STEP *by Gerard B. Lambert. Doubleday & Company, Inc., 575 Madison Avenue, New York 22, N.Y., 316 pages, $4.50.*

Mr. Lambert is the man who popularized the word "halitosis" and partly—but certainly not entirely—by this means made his family company, makers of Listerine, a $90 million corporation. He has also written mystery novels, served in government, and initiated a housing development where well-maintained units still rent for $25 a month.

man putting down a sound investment



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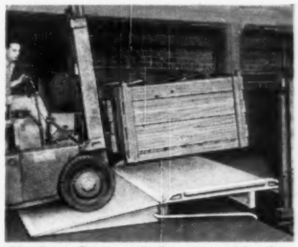

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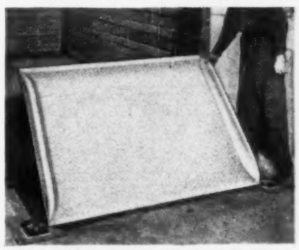

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Although largely a surface chronicle, his autobiography has a good share of amusing anecdotes. Chapters devoted to his experiences in advertising are particularly instructive.

Hints for better packaging

COMPANY APPROACHES TO BETTER PACKAGING, PACKAGING SERIES NO. 49, *American Management Association, 1515 Broadway, New York 36, N.Y., 42 pages, $1 (members), $1.75 (non-members).*

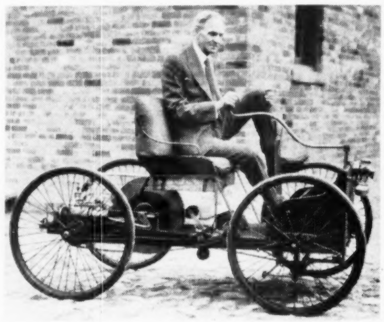
SOME TECHNICAL PROBLEMS IN PACKAGING, PACKAGING SERIES NO. 50, *American Management Association, 1515 Broadway, New York 36, N.Y., 40 pages, $1 (members), $1.75 (non-members).*

Two booklets embodying the proceedings of the AMA's packaging conference, held last Spring. The first includes three papers on the organization of a packaging committee, and a fourth reporting case histories in market research. In the second booklet are papers on "How to Measure Printing Quality," "Packaging Engine Parts for Original Equipment Manufacturers," "Packaging and Packing Panoramic Windshields," and "The Synthesis of an Adhesion Policy."

An inside story

MY FORTY YEARS WITH FORD *by Charles E. Sorensen, with Samuel T. Williamson. W. W. Norton & Company, Inc., 55 Fifth Avenue, New York, N.Y., 345 pages, $5.*

The free-wheeling management practices of the founder of the Ford Motor Company have been described in half a dozen books, but as one who saw things from the inside, and inside top echelons at that, Mr. Sorensen can speak with authority about what actually went on: how



Ford's pioneering mass production methods took shape, what the situation in the company was during Ford's last years, and how Ford treated his son, Edsel. And speak he does, freely and frankly.

Mr. Sorensen left the company after he had built the huge Willow Run plant during World War II and brought it into production. Then, as he noted in his diary: "Campsall called this morning—said Henry felt I should resign—his excuse, I am ambitious to be president of his company. Well, he can't treat me as he did his son and made a nervous wreck of him. I will live longer, his tactics are killing. Am very happy about it."

"It's called acrophobia—a fear of high places."

MANUFACTURING RATIOS . . . *continued from page 58*

In 29 of the manufacturing lines, the 1955 median net profit on net sales was lower than the average for the five years 1950–1954, although the total volume of business sales in 1955 was unprecedentedly high and corporate profits after taxes were close to the 1950 all-time peak.

The seven manufacturing lines with a higher ratio of net profits on net sales in 1955, compared to the preceding five years, were: drugs; foundries; hardware and tools; meats and provision packers; paper; petroleum; and stoves, ranges, and ovens.

The 1955 net profit on net sales for manufacturers of automobile parts and accessories, at 3.8 per cent, was slightly below the average for the years 1950–1954, and well below the 6.28 per cent in 1950. But net profits on tangible net worth in the manufacture of automobile parts and accessories in 1955 was somewhat above the five-year average, as was the median ratio of net profits to tangible net worth. The sales-inventory ratio was about the same as the five-year average.

DEFINITIONS OF TERMS

THE RATIOS—The data used are based upon a representative sampling with a tangible net worth which only occasionally is below $50,000. . . . The center figure for each of the twelve lines is the median. The other two figures in each line are quartiles; for each ratio they indicate the upper and lower limits of the experiences of that half of the concerns whose ratios are nearest to the median. When any figures are listed in order according to their size, the median is the middle figure (same number of items from the top and the bottom) and the quartiles are the figures that are located one-quarter and three-quarters down the list.

COLLECTION PERIOD—The number of days that the total of trade accounts and notes receivable (including assigned accounts and discounted notes, if any) less reserves for bad debts, represents when compared with the annual net credit sales. Formula—divide the annual net credit sales by 365 days to obtain the average credit sales per day. Then divide the total of accounts and notes receivable (plus any discounted notes receivable) by the average credit sales per day to obtain the average collection period.

CURRENT ASSETS—Total of cash, accounts and notes receivable for the sales of merchandise in regular trade quarters less any reserves for bad debts, advances on merchandise, inventory less any reserves, listed securities when not in excess of market. State and municipal bonds not in excess of market, and United States Government securities.

CURRENT DEBT—Total of all liabilities due within one year from statement date including current payments on serial notes, mortgages, debentures, or other funded debts. This item also includes current reserves such as gross reserves for Federal income and excess profit taxes, reserves for contingencies set up for specific purposes, but does not include reserves for depreciation.

FIXED ASSETS—The sum of the cost value of land and the depreciated book values of buildings, leasehold improvements, fixtures, furniture, machinery, tools, and equipment.

FUNDED DEBT—Mortgages, bonds, debentures, gold notes, serial notes, or other obligations with maturity of more than one year from the statement date.

INVENTORY—The sum of raw material, material in process, and finished merchandise. It does not include supplies.

NET PROFITS—Profit after full depreciation on buildings, machinery, equipment, furniture, and other assets of a fixed nature; after reserves for Federal income and excess profit taxes; after reduction in the value of inventory to cost or market, whichever is lower, after charge-offs for bad debts; after miscellaneous reserves and adjustments; but before dividends or withdrawals.

NET SALES—The dollar volume of business transacted for 365 days net after deductions for returns, allowances, and discounts from gross sales.

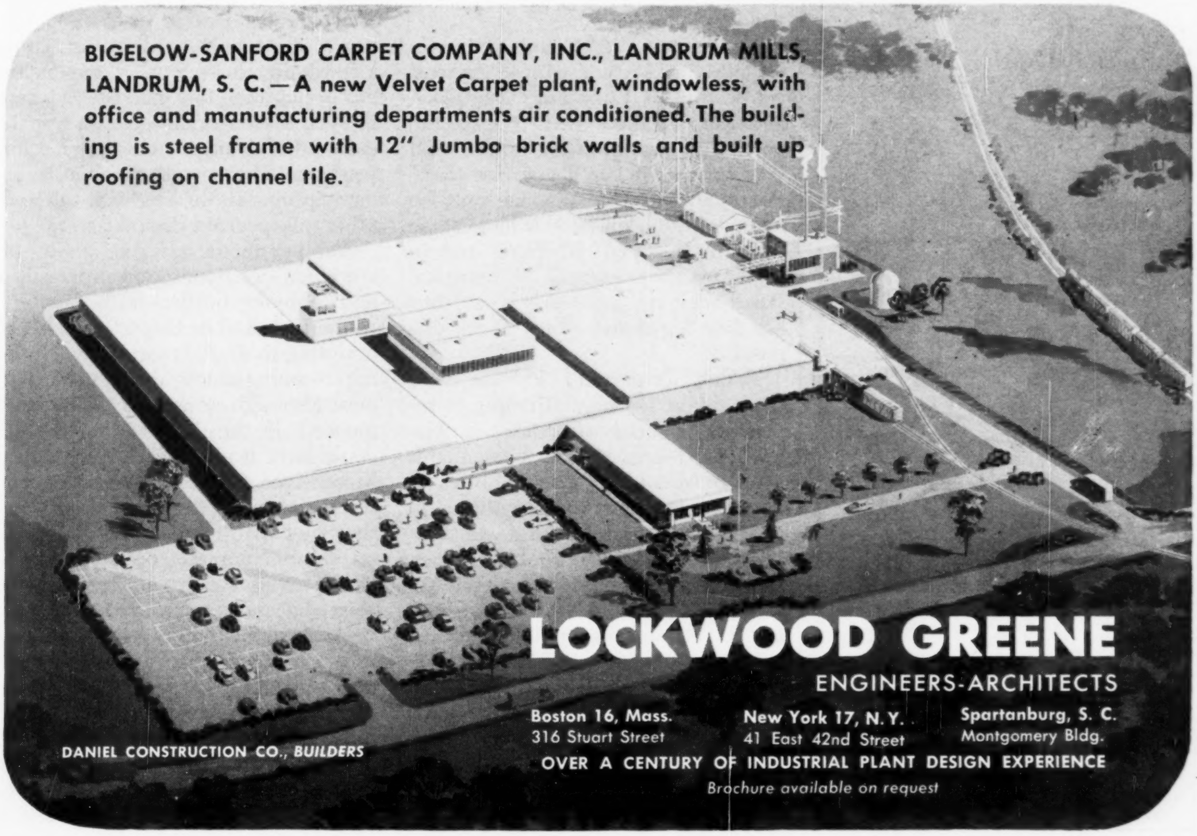
NET SALES TO INVENTORY—The quotient obtained by dividing the annual net sales by the statement inventory. This quotient does not represent the actual physical turnover, which would be determined by reducing the annual net sales to the cost of goods sold, and then dividing the resulting figure by the statement inventory.

NET WORKING CAPITAL—The excess of the current assets over the current debt.

TANGIBLE NET WORTH—The sum of all outstanding preferred or preference stocks (if any) and outstanding common stocks, surplus, and undivided profits, less any intangible items in the assets, such as good-will, trademarks, patents, copyrights, leaseholds, mailing list, treasury stock, organization expenses, and underwriting discounts and expenses.

TURNOVER OF TANGIBLE NET WORTH—The quotient obtained by dividing annual net sales by tangible net worth.

TURNOVER OF NET WORKING CAPITAL—The quotient obtained by dividing annual net sales by net working capital.



LABOR LEGISLATION . . . *continued from page 42*

where the AFL-CIO might be organizing more effectively if it were not held back by right-to-work acts.

The campaign went all against the unions for several years. But in 1955 the Governor of Kansas was persuaded to veto such a law, and the legislature could not muster enough votes to pass it over his veto. Last year the Governor of Kentucky was credited with bottling up in an unfavorable committee a bill given good chances to pass both houses. In Louisiana, the legislature gave organized labor its first solid victory—it repealed a right-to-work act (but then adopted another one covering only agricultural labor).

Since then, the unions have expressed greater confidence. Their defeat of an initiative in the State of Washington and their near-repeal of the Nevada law have strengthened the conviction they may be able to get rid of others. There are some states, however—Georgia and Virginia are two—where the prospects for repeal have been so poor that no repeal bill was introduced in the last legislative session. Whether attempts will be made in 1957 in these states remains to be seen.

The unions' Washington State victory was a clearcut win of citizens' votes. But in Louisiana, Kentucky, and Kansas, there was at least the possibility of a *quid pro quo*—"we'll vote for this if you'll vote for that." Political swaps like this can only be made where both parties have some strength to swap, however, and in some of the industrially marginal states with right-to-work laws labor has few legislative votes at its disposal.

Texas, Tennessee, Florida, and Utah might see new attempts to repeal the right-to-work law; in Alabama a repealer was beaten this year; in Mississippi a repeal bill was never assigned to a committee; in Nebraska it would take a constitutional amendment to abolish the act. In Vermont, agricultural interests are expected to introduce a measure, and in Connecticut the complete political upset may improve chances for passage, although the heavily unionized labor in that state may slow down Republican legislators as much as it has Democrats.

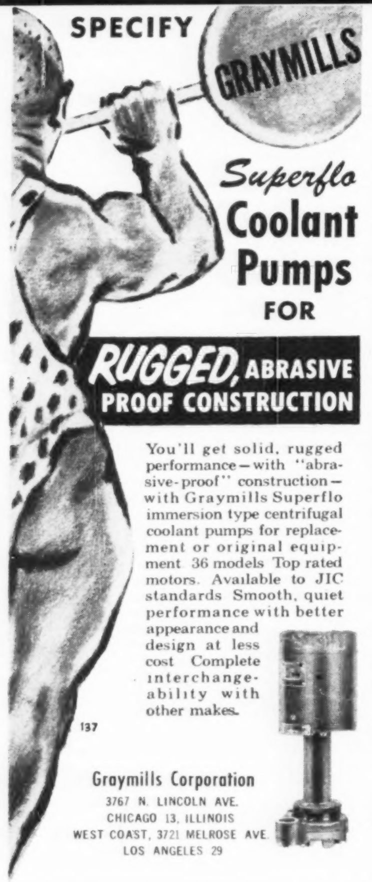
Big industrial states as well as the less industrialized will all be knee-deep in proposals for changes in two other kinds of labor laws—workmen's compensation and unemployment compensation. And in these instances, the tougher battles are likely to be in the states where no right-to-work issue will arise because of union labor strength.

There is always a great sufficiency of proposed amendments in these two areas, in any legislature in any year, but developments of the last year or two promise there will be at least as many, and that they will be harder fought over than usual as AFL and CIO lobbyists go into action arm-in-arm, for a change.

One new development in workmen's compensation is the widespread filing of claims for loss of hearing due to industrial noise. Loss of hearing is only a little easier to prove or disprove than a backache, and employers generally are dissatisfied with such provisions as exist to assure that they are not burdened with costs of a temporary condition on the one hand, or of a condition the worker brought to the job with him, on the other. Also, since loss of hearing was not foreseen as a compensable accident or disease, it was not adequately insured against. Only a few states have worked out methods of handling this kind of case, and in even these few, the results apparently satisfy neither management nor workers. There will no doubt be many proposals dealing with this and other job-incurred disabilities.

Another factor assuring plenty of workmen's compensation proposals—and lobbying battles—is the activity of the U. S. Labor Department in attempting to draft a model law. Nothing is being done about this draft now, although work might be recommenced if the Labor Department could have it put back in its budget. Meanwhile, employer associations in some states say that, even last year, they met with draft proposals based on the incomplete Federal model. These were designed to upgrade their state laws where compensation or other details fell below the standards of the proposed model. More should be in evidence in 1957.

Most of the workmen's compensation changes that will be proposed are so detailed that it is difficult to explain them at reasonable length. Among the early assumptions about



workmen's compensation acts was that they would simplify the matter of a man's getting compensation for an accident suffered on the job. As it has worked out, however, such a complex of decisions, precedents, and hair-splitting details has developed around the subject that it is necessary to have a professional guide to get safely through even a discussion of it. The bulk of the suggestions tossed to the legislators will be about this kind of detail.

One thing distinguishes workmen's compensation from some other kinds of labor legislation—employers probably present more positive proposals on this subject than on any other. This does not save their associations from having to fight union proposals in the opposite direction, but it may account for their fairly high batting average in this field.

Effects of SUB

The big boost in activity in the unemployment compensation area will come, of course, as a result of the unions' drive for the guaranteed annual wage, which resulted in a series of company-paid Supplemental Unemployment Benefit plans.

For workers who enjoy SUB, the unions will in many states be seeking legislation to assure that SUB payments and state unemployment compensation payments may be received simultaneously, so that SUB may fulfill its purpose to increase unemployment pay. In some states, the right to collect both rests on a commissioner's or attorney general's opinion that may be shaky. Amendment of the law to make the right positive will no doubt be sought.

Further, the establishment of these new state-plus-private benefits will logically bring forth attempts to liberalize the state unemployment benefits so that those not under SUB will share in the increase. As a matter of fact, when the United Auto Workers first began talking up the guaranteed annual wage, it described the plan as a means of making up for the states' failure to keep benefits up on a level with advancing wages and cost of living. It also predicted that once employers had to pay for supplemental benefits out of their own pockets, they would pitch in and see that the state benefits were amended upwards.

It is a fact that some employers who have signed SUB contracts are

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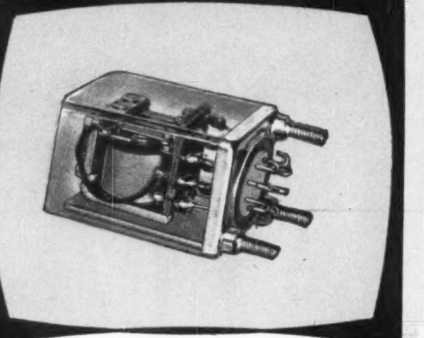
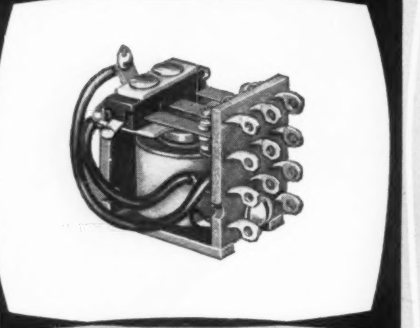


A three-pole, hermetically sealed version of the KM provides a multiplicity of action yet requires a minimum of space. Mounted with three #6-32 studs; eight solder terminals. This relay is especially useful in low voltage, DC applications where size and weight are critical factors.



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CONTACTS: Max. 3 PDT. 3/32" Dia. Silver 2 amps, 115V 60 cy. resistive
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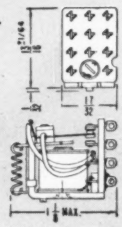
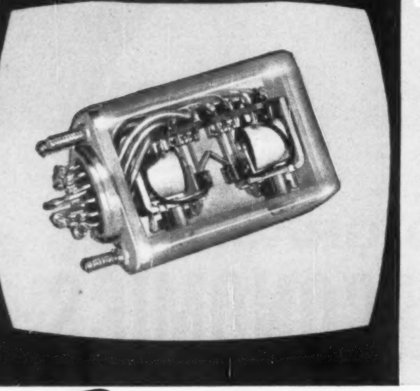
COIL RESISTANCE: Up to 6700 ohms
COIL POWER REQUIREMENT: 1 watt
TEMPERATURE RANGE: −45° C to +55° C
PULL-IN: 75% of nominal voltage
TERMINALS: Solder lugs





Designated as the KE, this latching relay combines two KMs for minimum size and weight. It operates on momentary impulse to either coil with a mechanical latch and electric release. Available up to 6 PDT. This relay was designed for intermittent duty only. Three-stud mounted with solder terminals. Hermetically sealed model is shown at left. Also available in open version.

Good Relay News! **KM SERIES ANSWERS DESIGN NEEDS**

Designers plagued with problems of miniaturization welcome the KM series as good relay news. These subminiature relays—open, hermetically sealed and latching—are wonderfully versatile, light in weight, and amazingly compact. The open KM occupies less than a cubic inch of space! Application possibilities range over such diverse fields as remote control systems, automated toys, small business machines and alarm systems. New applications suggest themselves daily to engineers working with designs where component size and weight must be kept to barest minimums. Your inquiries about our KM series relays are invited!

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now willing to go at least part way with the unions on increasing state unemployment compensation, although the state employers' associations seem to be uniformly opposed to such a move. How deep or widespread the split is will develop during the 1957 legislative sessions.

Another subject on which there may be less than complete unanimity in the management camp is occupational safety and health laws. In many states, business and industry live happily under reasonable—and reasonably well-administered—safety and health laws. What some fear, however, is over-regulation. They point to an incident in New Jersey earlier this year. There the Commissioner of Labor and Industry, a former State CIO president, promulgated a rule that any plant whose accident frequency rate went above a certain level must hire a safety man certified by the department. The rule was withdrawn as a result of widespread protest, but may be put forward in a bill next year.

Again, although employer groups in states that do not have civil rights or "FEPC" laws are concerned about plans to introduce them almost everywhere except in the South, most of those from states that already have such laws find them no trouble to get along with. Some say they are ineffective, but the general opinion seems that they are so carefully administered that they do not improperly interfere with hiring procedures.

There are two final issues likely to get more than usual attention this year, on which there will be more general agreement on the employer side. One is the perennial question of more taxes and where they are to come from, with employers (except for defections in the retail trades) generally favoring sales taxes and organized labor campaigning for corporate and income taxes.

The other is the minimum wage for employees in intrastate enterprises. The recent Federal increase to $1 an hour as a minimum in interstate commerce is expected to trigger demands for the same level in the states that already have minimum wage laws, and to increase the pressure for such laws in states that don't have them.

All in all, it looks like a busy year for the lobbyists and a rough one on the legislators, victims of all the pressures from all sides.

(ADVERTISEMENT)

SPECIAL REPORTS ON FINISHING NON-FERROUS METALS

NUMBER I—Decorative, Corrosion-Resistant Finishing with Iridite

WHAT IS IRIDITE®?

Briefly, Iridite is the tradename for a specialized line of chromate conversion finishes. They are generally applied by dip, some by brush or spray, at or near room temperature, with automatic equipment or manual finishing facilities. During application, a chemical reaction occurs that produces a thin (.00002" max.) gel-like, complex chromate film of a non-porous nature on the surface of the metal. This film is an integral part of the metal itself, thus cannot flake, chip or peel. No special equipment, exhaust systems or specially trained personnel are required.

Chromate conversion coatings are well known and accepted throughout industry as an economical means of providing corrosion protection, a decorative finish or a good paint base for non-ferrous metals. However, continued developments are so rapid and widespread that many manufacturers may not be completely aware of the breadth of application of this type of finish. Hence, this digest of current information; to bring you up to date on the many ways in which you can combine salable appearance with durability in one finish at a competitive price advantage. Report II on paint base, corrosion-resistant finishes and Report III on chemically polished, corrosion-resistant finishes are available on request.

First, as a basis for this discussion, a "decorative" finish is considered as any chromate film that is used as a final finish in itself. It may be truly decorative in that its sole purpose is to enhance the beauty of the product. For example, a bright chrome-like finish or a pleasing bronze appearance are among the many effects that can be obtained. It may be functionally decorative in that it reduces reflectivity for camouflage purposes or provides a means of color-coding parts. But, in all cases, the Iridite films protect the metal against corrosive attack.

Iridite finishes are now available for all commercial forms of the more commonly used non-ferrous metals, including zinc, cadmium, aluminum, magnesium, silver, copper, brass and bronze. These films can produce a wide variety of pleasing appearances. The basic colors of the Iridite coatings are grouped below by metals.

ZINC and CADMIUM: Metallic bright, light iridescent, iridescent yellow, bronze,* olive drab.

COPPER, BRASS, BRONZE: Metallic bright, yellow.

ALUMINUM ALLOYS: Clear, iridescent yellow, brown.

MAGNESIUM ALLOYS: Metallic bright, iridescent yellow-red, brown.

SILVER: Metallic bright.

In addition, many films can be modified by bleaching or by dyeing. Among the dye colors available are various shades of red, yellow, green, blue or black.

Depending upon the metal and the Iridite used, corrosion resistance of clear and bright films ranges from mild passivity to as high as 500 hours in salt-spray; on heavier dark films, salt-spray resistance ranges from approximately 100 to 1000 hours.

It is this combination of decorative and corrosion resistant properties that accounts for the widening use of Iridite finishes. For example, Iridites #4-73 and #4-75 (Cast-Zinc-Brite) make possible for the first time, a combination of lustrous chemical polishing of the as-cast surface of zinc die castings and good resistance to corrosion. Further, in many cases, sizeable savings in the cost of buffing and electroplating are realized.

On many steel parts, a simple system of zinc or cadmium plate and bright Iridite is used instead of more costly electroplated finishes to provide a bright, decorative and protective finish with tremendous savings in material, equipment and labor.

In finishing aluminum, where corrosion resistance or paint adherence is the prime consideration, the aircraft industry has all but abandoned the anodizing process in favor of recently developed chromate conversion coatings, among them Iridite #14 and #14-2 (Al-Coat). These formulations and their method of application can be varied to retain the original metallic appearance while providing acceptable corrosion resistance, or to produce a fully colored brown finish that offers exceptional corrosion protection. Again, time and man-power savings are astounding—one company saved at least $15,000 a year on maintenance of racks alone and another $40,000 on materials and labor in only nine months. In addition, of course, hundreds of thousands of dollars are saved by eliminating the need for expenditures for generators, heating equipment and racks.

Iridites are widely approved under both Armed Services and industrial specifications because of performance, low cost and savings of materials and equipment.

In planning or designing, you should consider the many other characteristics of Iridite finishes which may enter into the specific problem. In addition to having decorative and protective functions, these chromate coatings form an excellent base for organic finishes and bonding compounds. They have low electrical resistance. Some can be soldered and welded. The Iridite film itself does not affect the dimensional stability of close tolerance parts.

You can see then, that with the many factors to be considered, selection of the Iridite best suited to your product requires the services of a specialist. That's why Allied maintains a staff of competent Field Engineers—to help you select the Iridite to make your installation most efficient in improving the quality of your product. You'll find your Allied Field Engineer listed under "Plating Supplies" in your classified telephone book. Or, write direct and tell us your problem. Complete literature and data, as well as sample part processing, is available. Allied Research Products, Inc., 4004-06 E. Monument Street, Baltimore 5, Maryland.

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Production and Commercial Uses of Atomic Power

ON October 17 the first nuclear energy station in the world to produce power on an industrial scale opened in Cumberland, England. Britain's accelerated atomic power program is more than a purely experimental triumph. It is based strictly on economic need—on the fact that Britain's industrial production will require a 40 per cent increase in energy supplies over the next 15 years, while coal production can expand only 11 per cent.

Atomic Achievement (20 minutes, color) is an excellently photographed and narrated story of England's nuclear power program, present and future. The British Government has not been unnecessarily secretive about displaying specific processes on location, and the footage includes many documentary shots of a kind relatively rare in this country's atomic films. In addition to Calder Hall, these shots show: the Windscale plutonium factory, the Harwell research establishment, the uranium ore processing plant at Springfields, and the British Experimental Pile Zero at Capenhurst.

Requests for rental of the film should be addressed to: Films Division, British Information Services, 30 Rockefeller Plaza, New York 20.

Two other British films on atomic energy are also available from the same source:

Calder Hall (30 minutes, color): covering the actual construction of Britain's first industrial-type power plant. Rental: $9. Sale: $200.

Transatlantic Teleview No. 6 (14½ minutes, B&W): a filmed interview with Sir Christopher Hinton, director of the British Atomic Energy Industrial and Power Group. It contains a good general discussion of Britain's plans for production of nuclear power.

Union Carbide and Carbon Corporation has sponsored a film mainly notable for the clarity and conciseness with which it extensively describes the story of uranium.

Produced by MPO with the assistance of the Atomic Energy Commission, *The Petrified River* (28 minutes, color) opens with a vivid description of the geology of uranium, traces the prospecting, mining, and milling of the ore, and concludes with pictures of the general use of uranium to produce atomic power. In addition, it describes the commercial and medical uses of radioisotopes, and, by means of an animated sequence, the basic principles of atomic fission.

Prints are available for free loan from the Bureau of Mines, Department of Interior, Washington, D. C.

more films reviewed on page 74

An old-timer prospects for uranium on foot through the mesas of the Colorado Plateau.

If a claim looks promising, land must be drilled to determine real size of ore body.

Photographs from *The Petrified River*

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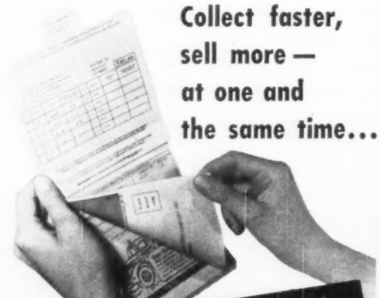

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Sales enthusiasm: knowledge on fire

Before producing the *Power of Enthusiasm in Selling*, (25 minutes, B&W), the Dartnell Corporation wrote to, or interviewed, over 100 business leaders on the subject of sales success.

Results, like former studies, indicated that sincere enthusiasm based on knowledge is consistently a major factor. More than a mere pictorial display of good advice, the movie dramatizes concretely *how* salesmen can develop enthusiasm.

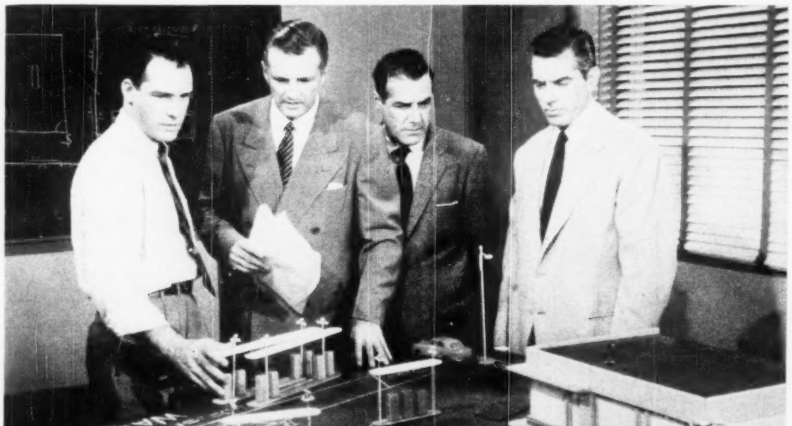
The story is simple enough: A young salesman regains his selling spark under the guidance of a sympathetic boss. What emerges as the requisite for sincere enthusiasm is increased knowledge on the salesman's part: of his product, his customers' needs, and his competitors' goods. The dialogue is convincing and the acting particularly natural.

Prints can be purchased for $290 from the Dartnell Corporation, Ravenswood and Leland Avenues, Chicago 40, or in the New York area from the Donnelly Institute, 509 Fifth Ave., New York. Rental requests accepted after January 1.

The marketing challenge in America

In describing clearly a subject hard to handle because of its diversity, *The Story of Oil Marketing* (27 minutes, color) is successful. Produced by Transfilm Inc., it was sponsored by Shell Oil for public relations purposes and personnel recruitment.

The experience of a college student with a Summer job in a service station provides a unifying frame-



Marketing experts use scale models to find the most productive site for service station.

work for the material. Under the guidance of a Shell manager, the student learns of job opportunities, which cover major marketing areas. Such problems as location of distribution points are explained simply but in detail.

It's unfortunate that an overlong and oversimplified animated sequence weakens the film; so does the college student's unconvincing and commercial "sincerity" concerning his future with Shell Oil. This is the kind of propaganda that prospective young employees would be the last ones to swallow.

Film prints are available for loan from the Shell Film Library, 50 West 50th Street, New York 20.

Man's battle against the insect world

The Rival World (27 minutes, color) is a motion picture study of man's war against destructive insect life. The emphasis has been placed upon nature photography rather than on promotion of insecticides for Shell Chemical Corporation, the sponsor. Footage for the movie is original and was acquired on several continents. The narration is absorbing but straightforward, for the most part allowing the excellent photography to tell its own story.

The film is thus an exampie of the best kind of general public relations film: one that speaks well for the company through its own quality and not pictorial propaganda.

Prints are available for loan from the Shell Film Library.

Industrial research: a documentary

Operation Hourglass (28 minutes, color) proves that subject matter, with the proper treatment, need not limit the quality of a film. Under the sponsorship of the Cummins Engine Company, Julien Bryan has produced an entertaining, skillful documentary out of a seemingly hopeless topic: dust in diesel engines.

Each stage of investigation into this maintenance problem is concisely described. The movie is thus, aside from its informational value, an admirable case history of practical industrial research. It is available on free loan from Association Films, 347 Madison Ave., New York 17.

Effective fire protection for your company

The First Five Minutes (27 minutes, B&W) is a fire prevention film stressing that the largest industrial fires start as minor ones easily extinguishable if immediate and effective action is taken.

Large industrial fires account for about a quarter of the nation's annual fire losses.

How this can be achieved through well-trained fire brigades is dramatized under the narration of the chief of the Hartford Fire Department. Described are: the chemistry involved in fires, prevention of hazards, and the use and applicability of fire fighting equipment.

The film is a good one for use in a company of any size. It is available for free loan from the Bureau of Communications Research, Inc., 13 East 37th Street, New York 16. Prints can be purchased from the producer, Audio Productions, Inc., 630 Ninth Avenue, New York 36.

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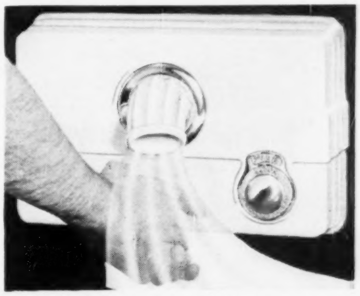

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RESEARCH . . . *continued from page 52*

The complexity of that task would be staggering were it not for the sources of information and aid that national scientific research has developed in the course of becoming a $5-billion-a-year project. No one-man research department need lack for helpful knowledge, if he knows where to look. He may have access to the know-how of government agencies, universities, and trade associations. Fifteen hundred commercial laboratories will take on his problems for a fee. Scientific societies publish pertinent papers. Casual discussions at trade and scientific meetings are a source of grapevine leads. Nonprofit laboratories share some developed techniques. Anyone can subscribe to the Patent Office *Gazette*.

This bountiful supply, however, is not all a matter of friendly give-and-take like the exchange that might characterize, for example, a meeting of Shakespearian scholars. Whatever jealousies may stir the bosoms of academicians, the Shakespearian scholar displays all his findings for colleagues to admire or dispute. Not so industrial researchers. Today's 500,000 science soldiers are in a competitive field and constantly invading enemy territory. Technological spies have been planted in rival laboratories. The pirating of personnel is not unknown. And aside from these reprehensible (and largely outmoded) practices, competition is keen. Enough so, perhaps, to justify using the military comparison that casts research directors as intelligence officers who must have radar networks for detecting rival operations early enough to plan protective campaigns.

Scanning the field to spot what the competition is up to represents only one use to which the long radar beam can be put. The sources of information to be listed in this article vary widely in the purposes they serve. A first consideration is to identify the sources of scientific and technological facts of most direct interest to your company. If you were looking up a word beginning with B in the dictionary, you would not first run through all the A's. Shortcuts to needed information and services are possible only if you are familiar with the entire available range of resources.

First among the giants of research—and a vast reservoir of accessible information—is the Federal Government itself. In an effort to make a complete resource list, aid was sought from John C. Green, director of the Office of Technical Services, Department of Commerce. His helpfulness is responsible for much of the factual information in the following run-down of agencies and publications useful in scanning the field of science for research trends.

University Research Centers

Many companies maintain regular contact with universities through grants-in-aid, fellowships, and other forms of support for basic science. Research staff members make periodic visits to evaluate significant trends.

These research scouts from industry are also on the alert for promising young university research workers. The latter are fair game for recruiters, and word of finds may be passed back to the personnel department.

Government is the largest sponsor of university research. In 1954 it contributed about $300 million of the $420 million university research expenditure.

Probably there are around 300 universities, colleges, and professional schools that will contract for research projects. An excellent instrument for surveying this field is the Engineering College Research Council's annual publication on research in progress. After scrutiny of the text and determination of projects of interest to his company, our "technical intelligence officer" can discover specifics by communicating directly with the project leaders.

Nonprofit Research Institutes

There are something over 100 nonprofit research institutes, many with superb facilities and personnel. Among the more notable are Armour, Batelle, Cornell Aeronautical, Franklin, Mellon, Midwest, Southern, Southwest, and Stanford.

These organizations perform "contract" research, the results of which are usually not disclosed. However, they also undertake a certain amount of public service research, which is announced through newsletters, press releases, and other media. A

request for mailing list privileges will ordinarily bring results.

Incidentally, the availability of this literature, and material to be obtained from other sources at little or no cost, may make it worthwhile to establish a modest yet convenient reference library in almost any field of interest.

Commercial Laboratories

The earliest of these independent commercial research and testing laboratories was Arthur D. Little, founded in the research pioneering days of the 1880's. Names of others may be found in the *Directory of Commercial and College Testing Laboratories*, published by the American Society for Testing Materials.

The commercial laboratories do not give out research results of their clients' projects. However, their literature indicates fields of specialization as useful guides to companies in search of facilities for hire.

Trade Association Research

At least 50 of our leading trade associations engage in research for the benefit of their members. A substantially larger number regularly compile technical information falling within the scope of their general charters. The technical man should investigate whether the trade associations in his company's field perform research or assemble research information for the benefit of their members. In looking into this aspect of the problem, he can obtain helpful information from the Trade Associations Division of the U. S. Department of Commerce.

Attendance at Meetings

Research workers are of necessity close-mouthed on restricted company information; yet they are no different from anyone else in reacting cordially to a personal interest in them and their work. Meetings where papers are read are likely to warm up participants to each other. A stimulus to one's own thinking may be more valuable than another's secret.

Meetings on administrative research are held annually under the auspices of the Engineering College Research Council. Started in an informal way for an exchange of views on research administration, they have grown in number and in scope, and the papers delivered by leaders in research are valuable indices of research trends and practices. Although these are published and distributed later, attendance at the meetings themselves is valuable because of the give-and-take.

Government Publications

The Federal Government's 1954 expenditure for research and development was about $2.1 billion. Although nine-tenths of this was spent on applied research in the interests of national defense, much of it touches the interests of industrial laboratories. The mighty flow of research and development in Government facilities might be thought of as a Gulf Stream of basic and applied science that considerably affects the technological climate of many industries.

There are three techniques for investigating this Governmental reservoir of scientific facts:

1. Study of the *Monthly Catalog* of the Superintendent of Documents. This will provide information on reports issued by the Government Printing Office for scientific agencies of the Federal Government. Further, the prices and method of ordering are given.

2. Examination of *United States Government Research Reports*, sold by the Department of Commerce. This catalog is entirely devoted to brief abstracts of new Government research reports.

3. *Direct contact with the Government agency carrying out pertinent research.* Many thousands of scientists now work in Federal laboratories. When the national interest permits, results of their work are available to the general public. An alert company officer will do well to find out what agencies in Government carry out research pertinent to his company's interests and then establish a direct contact. Among Federal research agencies whose work most directly relates to industry, we find: the National Bureau of Standards in the Department of Commerce; the Bureau of Mines in the Department of Interior; the Bureau of Agricultural and Industrial Chemistry, in the Department of Agriculture.

Industrial Laboratories

To continue the military comparison, there appear on the radar scope many concentric rings representing areas of research effort by univer-

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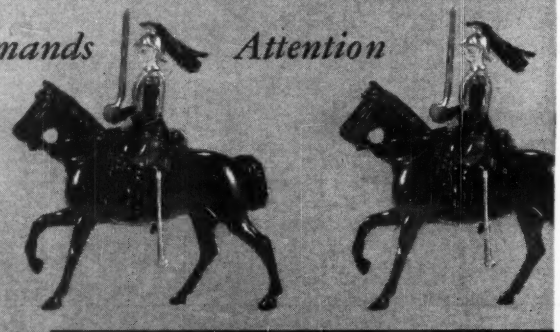

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Self-Dumping Hoppers cut waste handling costs 50%

Here's how Flintkote Company of East Rutherford, N. J., manufacturers of roofing materials, solved waste disposal problems and cut handling costs 50%. They formerly used wheelbarrows, trundling them to the shipping dock where scrap was manually shoveled into a truck. Now they have 35 Roura Self-Dumping Hoppers located throughout the plant collecting scrap. A standard lift truck picks up a full Hopper, takes it to the dock and raises it directly over the truck. With a flip of the latch, the Hopper automatically dumps its load, rights itself, locks itself and is ready for another load. One man does the entire handling job.

Roura Hoppers fit any standard lift truck . . . handle wet or dry, hot or cold bulky materials . . . cut costs . . . save time.

ROURA Self-Dumping HOPPER

WANT MORE DETAILS? Attach this coupon to your letterhead and mail to
ROURA IRON WORKS, INC.
1404 Woodland Ave., Detroit, Michigan

sities, foundations, nonprofit and commercial laboratories, and Government. Nearest and most directly vital to any company is the small circle comprising its industrial rivals.

We say "small circle" because it is such, in area and intimacy. Considering the staggering sums spent on research nation-wide, the numbers of industrial firms engaging in any research programs is surprisingly small. It is probable that only about 4,300 manufacturing companies—or 1.5 per cent of the total number in the United States—maintain laboratories. An even smaller group does the bulk of the industrial research—fewer than 300, it has been estimated, employ roughly two-thirds of all industrial researchers and one-third of all researchers of any kind. These companies also support a great deal of the research done in commercial laboratories and non-profit institutions.

The 99 per cent who do no research might reflect on the further facts that the small group responsible for most of the research also takes out most of the patents, and that these companies have the highest financial ratings.

To companies that have embraced research, and to those lukewarm or indifferent to it, the following easily obtained sources of facts and trends may prove stimulating:

Industrial Research Laboratories of the United States, published by the National Research Council, lists fields of interest of the leading research laboratories of the country. It is a pinpoint target area of "defensive research" in that it provides a continuous analysis of the process activities and new products of competitors. This so-called blue book of industrial research catalogs the number and classifications of professional research staffs, the supporting technical personnel, and the non-technical administrative staff. By counting the number of research workers in a competitor's laboratory and multiplying by $12,000 a year, it is possible to reach an estimate of a competitor's annual research spending. While this is a yardstick—not a micrometer—it has some value in measuring competitive technological strength.

Scientific and Technical Societies in the United States and Canada is also published by the National Research Council. As the title indicates,

this publication identifies the professional societies by disciplines. Since the journals and meetings of such groups are usually devoted to release and exchange of information, membership is a desirable method of maintaining scientific awareness.

There is also the scientific and technical press, which is the normal medium for reports of scientific developments. There are at least 2,000 periodicals covering science and technology available in this country and it is, of course, not possible for the technical officer to examine them all. However, he should subscribe to the leading journals and examine them carefully and regularly. The *Engineering Index* is a useful tool in keeping abreast of scientific data as reported by these publications.

Patent literature is another primary source. It should be realized that business firms engaged in research do not publicize their activities widely since to do so might jeopardize their future commercial positions. However, significant research results are patented, and the U. S. Patent Office thus has become an excellent scientific library in which the material is carefully cataloged by subject matter. The technical intelligence officer will do well to consult the records of the Patent Office, which are open to the general public. Further, he can keep abreast of new patents as issued by subscribing to the *Gazette,* issued weekly by the Patent Office.

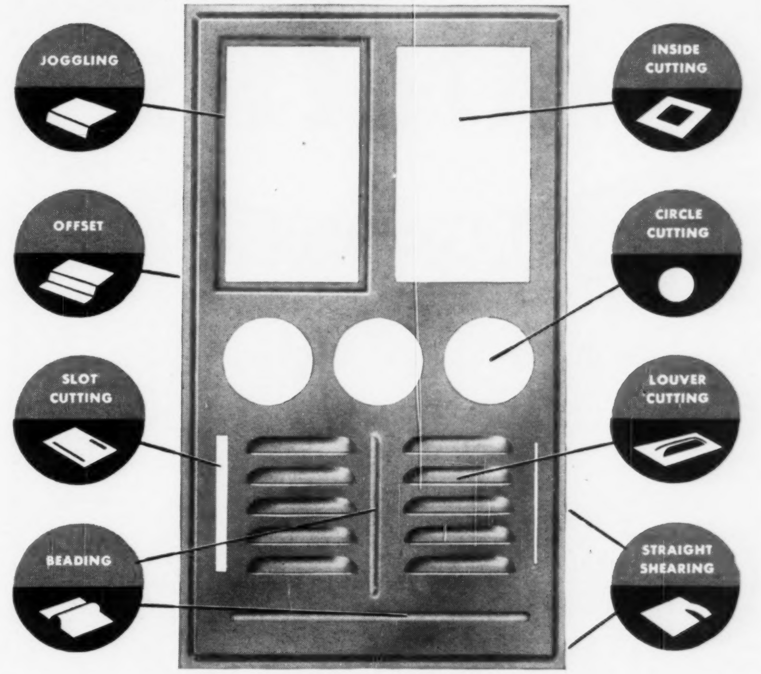
This completes our resource list. From its length and coverage it can be seen that there is no simple, easy tool for keeping abreast of the wealth of scientific facts pouring out in an ever-increasing amount. Even so, it is wasteful of time, men, and funds to undertake new research if the facts are already available. The technical officer must take all reasonable precautions to consult the record. Then he must use his creative imagination to relate the scientific facts to present and future operations of his business. This information, properly and promptly interpreted to management, will become a significant, positive force in competitive success.

Research Abroad

Sea-level radar has its horizon limits, but research radar would give us an incomplete scope unless it were extended to include Europe,

PULLMAX METALWORKING **IDEAS**

Expensive dies eliminated with standard Pullmax Tools

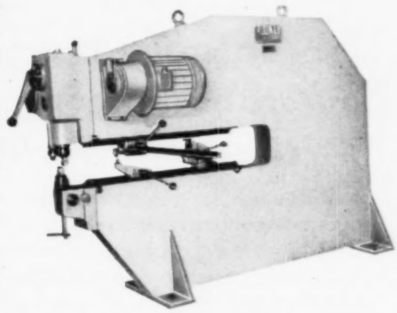


This instrument panel board made complete on a PULLMAX

Only the Pullmax universal shearing and forming machine has the versatility to do all of the metalworking jobs in your Model Shop, Engineering or Maintenance Departments.

This one versatile machine does straight shearing, inside or outside circle cutting, design cutting, inside square cutting, beading, joggling, slot cutting, louver cutting, dishing, edge bending and flanging.

7 sizes of machines cut up to 11/32" in mild steel. Ask for a demonstration right in your plant.



AMERICAN PULLMAX CO., INC.
2483 N. Sheffield Ave., Chicago 14, Ill.

MORE MONEY-SAVING METALWORKING IDEAS ARE YOURS IN THIS *FREE* BOOKLET

Please send us the Pullmax Catalog on Money-Saving Metalworking ideas.

COMPANY__________

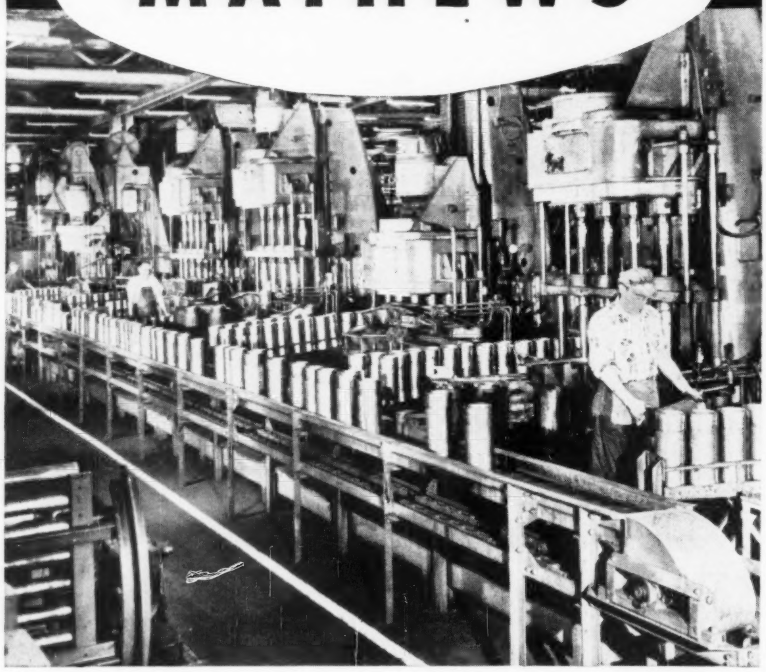
STREET__________

CITY__________ ZONE__________ STATE__________

NAME__________ TITLE__________

What's in a name?

MATHEWS



Chain conveyer handling cylinder liners for tractor engines.

This one is on some of the outstanding conveying systems in the Metalworking Industries

Mathews' Engineers have been designing and building gravity and power conveyers and special conveying machinery for over fifty years, and a great amount of this equipment has been applied in metalworking plants. Mathews' Engineers know the handling problems of the metal producers and fabricators. That's why so many people in these industries have an extra measure of confidence in Mathews equipment—and why you see Mathews Conveyers in metalworking plants everywhere.

50 YEARS OF MECHANIZED HANDLING

MATHEWS CONVEYER COMPANY
GENERAL OFFICES . . . . ELLWOOD CITY, PENNSYLVANIA
PACIFIC COAST DIV. MATHEWS CONVEYER COMPANY WEST COAST SAN CARLOS, CALIFORNIA
CANADIAN DIVISION . . MATHEWS CONVEYER COMPANY, LTD. PORT HOPE, ONTARIO
Engineering Offices or Sales Agencies in Principal American and Canadian Cities.
Export Representative—Foreign Trade Division of New York Hanseatic Corp.

acknowledged world leader in basic science in the pre-World War II period, and perhaps still the leader.

Recently seven technologically alert companies have sent teams of research executives to the major European industrial nations to study trends, in both pure and applied science. In some instances, they set up technological liaison offices in Frankfort, London, Paris, Rome, and Geneva. These locations are chosen on the basis of reports of authorities in the field of international technical exchange services. According to recent reports, in the actual "export of technology" in the form of patented processes and new products to the United States, the industrial nations of Europe rank in this order: (1) West Germany, (2) Great Britain, (3) France, (4) Switzerland and Italy. This export of technology to the United States is pretty much proportional to the industrial volume and progress since World War II in these countries.

THE AUTHORS • Mr. Holland served for 18 years as director of the Division of Engineering and Industrial Research, National Research Council. He also founded the Industrial Research Institute, and was its first Honorary Fellow. Ten years ago he organized a pioneering course in research laboratory organization and management at the Graduate School of the College of Engineering, New York University, and continues as one of its lecturers. In 1951–1952 he was a member of the Mutual Security Administration Technical Assistance Missions to Germany, France, and Italy. At present he serves as adviser to top management on research policy and long-range planning.

Mr. Ross is University Press Editor at the University of Miami, and was chief editor of the first manual on research organization and management, *Profitable Practice in Industrial Research*, to which Mr. Holland also contributed.

The material in this article will form a chapter in the authors' forthcoming book, *Management's Role in Research*, to be published early next year by Harper & Brothers.

The radar function of research operates at the top management level of long-range planning for future corporate development and growth. When the president of a company sits down with his cabinet, including staff and operating executives, the operating vice presidents (the men in charge of production and sales) can give him exact figures on past performance. Only the staff man in charge of research can give him an estimate of the future.

All the water industry can use plus water transportation— at CHEBOYGAN, MICHIGAN

Cheboygan is one of Outstate Michigan's fine ports on the Great Lakes where excellent sites are available for industry.*

Located at the top of Michigan's Lower Peninsula, Cheboygan is just 15 miles from the magnificent new bridge across the Straits of Mackinac. It offers water transportation to the ports of the world via the Great Lakes and the St. Lawrence Seaway. Water for industrial processing is unlimited.

Some of Cheboygan's industrial sites have frontage on Lake Huron. Others are on Cheboygan Harbor, formed by the mouth of the Cheboygan River. A turning basin accommodates vessels up to 600 feet long.

The area is served by the New York Central and Detroit & Mackinac railroads, by truck lines and Capital Airlines. Skilled manpower is available. So are raw materials and processed parts. Electric power is plentiful.

Cheboygan is great for living, too. The beautiful Cheboygan River is outlet for 44 miles of inland waterway. Within ten miles of the city are three of the largest inland lakes in the United States. Here is one of Outstate Michigan's most popular vacation areas.

Let us tell you more about Cheboygan and other locations in Outstate Michigan. Telephone or write to our Industrial Development Department today.

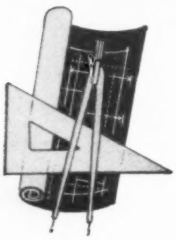
**Others are Bay City and Saginaw on Lake Huron or connecting waters, and Muskegon, Manistee, Frankfort, Traverse City, East Jordan and Boyne City on the Lake Michigan side.*

CONSUMERS POWER COMPANY
JACKSON, MICHIGAN

Serving 3,500,000 People in Outstate Michigan

Craftsmen of the 20th Century

No. 22 of a series to introduce you to some of industry's outstanding plastics craftsmen



Traditionally, materials have challenged the artisan. Early inspiration came from gold and silver. Later, it was steel and stone. Today, there are new materials but the challenge is still there. The same priceless skills are now working with the fabulous family of plastics to produce articles by the million that can serve every industry, every home.

Two of these 20th Century craftsmen are pictured on this page. Monsanto, a major producer of plastic materials, salutes these molders of America's industrial tomorrow.

When your plans call for plastic parts or products, consult an expert custom molder

Victor Theodore Erickson, Bridgeport Moulded Products, Inc., Bridgeport, Conn. Ted Erickson has been with Bridgeport since 1940. For the past 4 years he has been Supervisor of Engineering, responsible for estimating, tool design, product development, sales engineering, methods, and time study. A large percentage of Bridgeport's business is in the manufacturing of parts for the electrical, refrigeration, air conditioning, business machine, radio, and TV fields. The molding department is equipped with 80 compression molding machines that range in size to 450 tons. There are also 29 presses in the injection molding department with capacity to 200 ozs.

Mr. Erickson believes a job is no better than the design and construction of the tool. "All our work requires close tolerances," he says. "That's why Bridgeport's tool room is as up-to-date as any in the country." On the role of molded plastics in industry, Mr. Erickson points out that "Better and stronger materials are constantly being developed through research. That means we in production have to keep up with these developments. Automation, still in its infancy, carries with it the brightest type of outlook for plastics. We are going to have to bring in more modern equipment, methods, and design to keep up with this progress."

Paul C. Haas, The Haas Corporation, Mendon, Michigan. Mr. Haas heads a company that operates 25 compression molding presses including several 675-ton units. The first products were explosion proof lights and other safety equipment for mines and industry. Now the company turns out 800 different items, including telephone bodies, washing machine parts, and components for the automotive industry. As many as 7 million pieces of a single item have been made in a year.

Mr. Haas feels that research by materials suppliers on the development of new and improved molding compounds is opening new applications for plastics and helping the molder broaden the market for his products. "Improved molding equipment is an important factor too," Mr. Haas points out. "For example, our new 675-ton high-speed presses, equipped with cycle control, insure a more uniform product at reduced costs. And due to the ever improving moldability and physical properties developed by the materials manufacturer," Mr. Haas continues, "bigger and bigger pieces are being made by compression molding. That's why more and more industrial manufacturers like the automotive and appliance industries are turning to the plastics custom molder to help solve production problems and provide improved parts."

MONSANTO CHEMICAL COMPANY,
PLASTICS DIVISION, SPRINGFIELD 2, MASS.

MONSANTO ®

Resinox: Reg. U. S. Pat. Off.

RESINOX
PHENOLIC MOLDING COMPOUNDS

NEW TWIST IN TOLL TELEVISION

How to create a good selling climate; wooden nickels and trading stamps; breakthrough coming in vending.

THE FIRST RUMBLE in what may very well be a marketing revolution in both television and motion pictures can now be heard in the oil industry town of Bartlesville, Oklahoma. In this TV-conscious community of 40,000, the work on the first "cable theatre" will begin in early Spring.

This will involve the simultaneous showing of new Hollywood features in a regular movie theatre and on home television screens. Closed-circuit TV, which is becoming increasingly important in industry (July 1956, page 47), will provide the link.

By using this method of direct transmission, public-domain airwaves are not involved and FCC approval, which is holding up other pay-as-you-see TV, is not needed.

Developed by the Jerrold Electronics Corporation of Philadelphia, the new TV system will pipe the pictures over cables to home screens for a monthly charge.

If this first installation proves a trend-setter, as Jerrold expects, it will lead to a massive new market for motion pictures. Says Jerrold President Milton J. Shapp: "By electronic means, the walls of a conventional theatre will be pushed outward to surround the entire city and make it a giant theatre."

Making sales makers

You may have a clear idea of what qualities you'd like to see in your salesmen and sales trainees. But are you familiar with the qualities salesmen themselves rate as most important to produce sales?

To find out, the National Sales Executives polled a number of outstanding salesmen about the specific differences between crack salesmen and also-rans. Here is a quick rundown of the top factors that paid off for the standout salesmen:

1. Ability to absorb sales training.
2. An awareness of the importance of planning each day's calls.
3. Ability to get across product information.
4. Superior sales-closing skill.
5. Skill in answering price objections.

But however skilled your salesmen may become, that is only part of the story. They may have the proper customer-centered attitude and a good kit of sales-producing skills and still falter if they are not backed up by top management. This is particularly important in small business, which lacks the many company specialists and programs common in big business.

To help meet this problem, the U. S. Small Business Administration has developed this checklist of steps that a small company can take to provide the right climate for encouraging salesmen to improve their own skills:

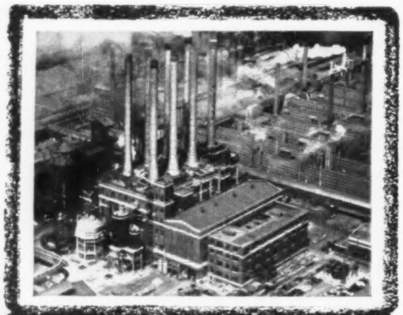
1. Maintain Ethical Standards. Some managers see little wrong with what they term "kidding employees along to make them happy." This can involve withholding a little information here, stretching the truth a bit there, breaking a promise. These and other lapses undermine respect for management and weaken confidence and incentive.

2. Set a Favorable Tone. In a small company the top manager more than anyone else sets the mood for the business. Every concern has its particular tone. "Country Club" and "ulcer outfit" are just two of the employee terms for it.

Supermarket becomes 24-hours-a-day store

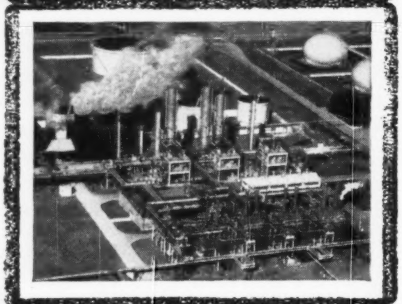
The breakthrough for the automatic vending market is much nearer now that the first installation in a supermarket is made. Housewives in East Paterson, N. J. can buy enough staples for a complete meal from the machines which are set into the front of a Grand Union supermarket. Vending has increased fourfold in the past decade.

DESIGNS FOR PROFIT... BY KULJIAN

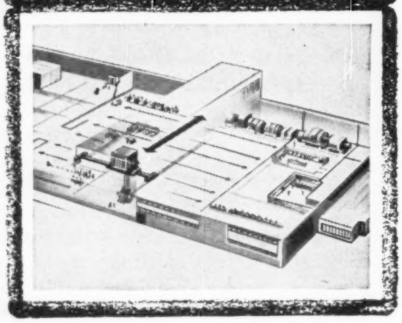


POWER. Ford's Rouge Plant gets another boost in steam generation. The new units, each capable of producing 600,000 lbs. per hr., make highly efficient use of blast furnace gas as well as other fuels. Modernization of the world-famous industrial power plant, including boiler replacement, was accomplished without disruption of service.

AVIATION. The world's largest repair and maintenance hangar—exceeding 1,000,000 sq. ft.—for U.S. Air Force, A.M.C. at Kelly A.F.B., Texas, is designed for processing even the heaviest bombers on a production line basis. Kuljian services are also available to Manufacturers, Airlines, Airports and Fixed Base Operators.



REFINERIES. Sun Oil Company's $15,000,000 petrochemical plant at Marcus Hook, Pa., covers 20 acres. Designed capacity in excess of 50,000,000 gallons of petrochemicals annually. Kuljian cooperated with Sun Oil engineers to design the prefractionation and catalytic reforming sections.



INDUSTRY. New G. E. Apparatus Service Shop and Warehouse in Philadelphia is a striking example of a building properly designed to permit flexibility of operation and future growth. Complete facilities for the repair of industrial, transportation and central station apparatus are maintained here to service the needs of Delaware Valley.

If you are planning to expand, modernize or replace your present plant facilities, we welcome the opportunity to work with you.

SURVEYS • DESIGN • PROCUREMENT • CONSTRUCTION SUPERVISION

The Kuljian Corporation

engineers • constructors

1200 No. Broad St., Philadelphia 21, Pa., U.S.A.

3. *Keep People Informed.* But, if damaging rumors do rise, don't ignore them. Rather, make a special effort to pin them down as just so much scuttlebutt.

4. *Look Ahead.* Forego too much emphasis on past performance and stress instead plans for the future.

5. *Handle Preconceptions Carefully.* Salespeople develop fixed ideas, sometimes erroneous ones, over a period of time. You won't dislodge them with a "papa knows best" attitude or the repeated lecture method. Instead try to understand the causes of the wrong ideas and bring in some objective investigation.

6. *Allow Opportunities for Mistakes.* Sometimes mistakes are better teachers than success. A healthy climate for growth implies opportunity for salespeople to make mistakes and to profit by them.

Live wire industry

If the electronics industry is one of your important customers, the market projections for that industry made last month by Sylvania Electric Products should be of keen interest.

Market Research Director Frank W. Mansfield looks for a doubling in the market for all electronic products during the next decade. The volume this year came to about $11.5 billion—twenty times the volume back in 1940.

Terming electronics "the most rapidly growing of any major American industry," he looks for a rise to $15 billion by 1960 and a gain to $18 billion by 1963. How do *your* product

Microfilming drive-in

Adapting itself to the ways of the natives, the Recordak Corporation has opened in Los Angeles a microfilm processing laboratory which offers a drive-in service window.

. . . to recruit and train the technical manpower for, and to maintain and operate

★ the DEW LINE

★ WHITE ALICE

Young Men

Outstanding career opportunity for qualified men in Electronics, Transportation and Supply or Diesel and Mechanical fields. Send resume of previous experience and education to: Personnel Director, Federal Electric Corporation, Box 347, Lodi, New Jersey.

Two of the greatest Arctic construction jobs ever attempted are drawing to a dramatic climax.

One, the Distant Early Warning (DEW) Line, will flash the *first* warning of an enemy approaching from the north. It is America's latest answer to the challenge of maintaining world peace.

The other, Alaska Integrated Communications Exchange (White Alice), is a vital network including "over-the-horizon" and "line-of-sight" microwave links connecting isolated communities and defense installations across Alaska, as well as existing telephone and telegraph services.

Manpower of the highest order in skills, stamina and intelligence is imperative. The U. S. Air Force has selected Federal Electric Corporation, a subsidiary of International Telephone and Telegraph Corporation, to operate and maintain both these far-flung installations.

Federal Electric Corporation's experience on military assignments in the Arctic . . . in the maintenance of specialized navigational equipment for the Air Force . . . as a field service and maintenance organization for IT&T's laboratories and factories . . . coupled with the world-wide experience of IT&T, make this an ideal partnership for so broad and technical an undertaking.

IT&T

INTERNATIONAL TEL AND TEL

INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION, 67 Broad Street, New York 4, N. Y.

Executive Gift Plan

TASTEFUL • DISTINCTIVE • GRACIOUS

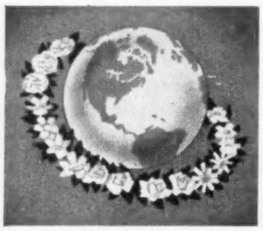
Say it with Flowers-By-Wire

FLORISTS' TELEGRAPH DELIVERY
Send Flowers Worldwide
INTERFLORA

Plants and flowers leave a lasting impression . . . a constant reminder of your thoughtfulness and good taste. Think of flowers *first* this Christmas and every time a business gift is in order. Distance is no barrier — F. T. D. service is world-wide.

It's so easy to Wire Flowers

EASY & FAST. Just call the florist who displays the MERCURY EMBLEM. He takes care of everything in minutes.



WORLD-WIDE SERVICE. 20,000 F.T.D. and INTERFLORA members serve you around the globe.

GUARANTEED DELIVERY. Delivery is fully assured. No worries about it "getting there."

Florists' Telegraph Delivery Association, Headquarters: Detroit, Michigan

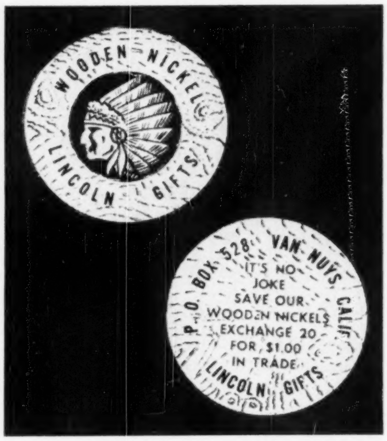
Guaranteed by Good Housekeeping

plans fit into this new fast-growing market?

Wooden nickels

The proverbial wooden nickel is no longer to be avoided. Like the American Indian, it is making a strong comeback.

The newest twist in premium promotions is the wooden nickel which is being given away by a mail-order retailer in Van Nuys, Calif. "It's no joke," Glenn L. Anderson, owner of Lincoln Gifts tells his customers.



"Save twenty of our wooden nickels, get $1 in merchandise." One is given with each $2 purchase.

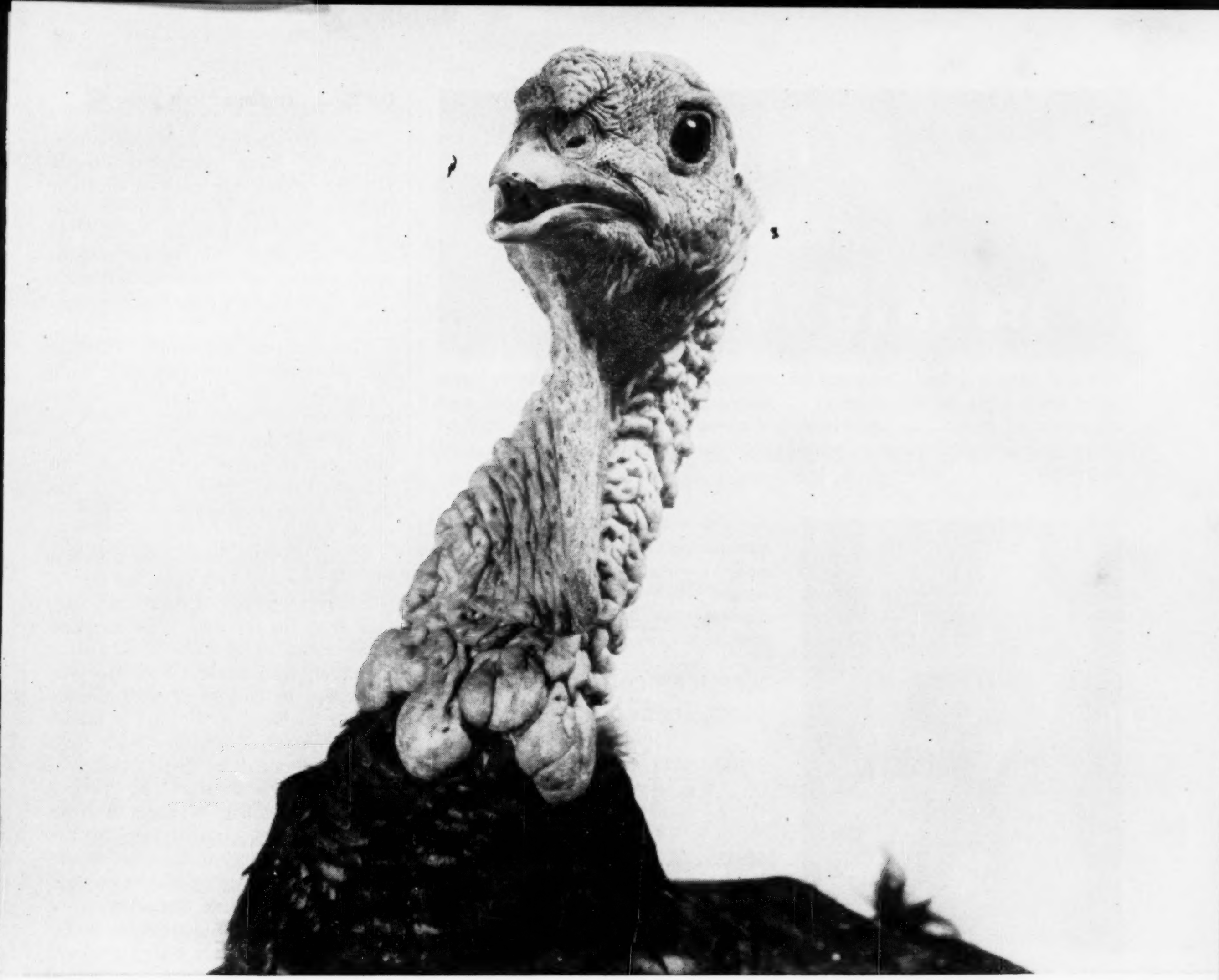
Will this new premium beat out the fast-growing trading stamp promotions? Undoubtedly not. For as any housewife, bending over her paste-in book will swear: "Stamps are awfully hard to lick."

Jangled belles

During the Christmas rush, both shoppers and sales girls feel their nerves have been rubbed raw. To reduce this friction, the National Sales Executives recently ran a survey of about 70 retail stores to find out from both groups the areas of irritation. Out of the survey came a booklet, distributed to retailers, of helpful hints for both sides.

Salespeople complained that too many customers insist on being served out of turn and after closing time. They feel that customers are too talkative and spoil displays.

Customers complained they were discouraged from examining merchandise, met delays in seeking adjustments, and, strangely enough, that salespeople were too talky. — T. K.



Some of my best friends are frozen

This is the story of frozen foods and the help they get from banks

Turkey and trimmings included, Americans last year stowed away almost two billion dollars' worth of frozen food of all kinds.

The experts claim you'll do even better next year. And to serve you they're spending a small fortune now on new processes, new packages and new storage facilities.

Bankers serve

This is where the bankers take seats at the frozen food table. As in every other industry the money entrusted to banks by depositors becomes available to credit worthy borrowers in the form of bank loans. These loans provide ready money for the many steps of production and distribution. Ultimately, loans to the frozen food industry help make it possible for you to stock your home freezer with everything from turkey gobblers to pizza pies.

How you benefit

Financial help to the frozen food industry is only one example of banking's contribution to the way Americans live. Wherever you look in business, large or small, you'll find the services and resources of commercial banks being employed to stimulate the industrial progress which benefits all of us.

The Chase Manhattan Bank of New York, leading lender to American industry, is proud of the contribution commercial banks are making to the well-being of the entire nation.

THE
CHASE
MANHATTAN
BANK

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

(One of a series of advertisements appearing in New York City newspapers.)

WHY MONARCH lathe head stocks are MICROHONED

Monarch Machine Tool Company Microhones the spindle bores in its lathe head stocks because Microhoning . . . generates consistent finish, size, and alignment of bores . . . corrects out-of-roundness . . . eliminates cost of line-reaming operations . . . permits interchangeability of spindles and bearings.

And with the use of a new three-diameter Microhoning tool, honing time is reduced approximately 40% over former method which employed two double-diameter tools. One set-up now replaces multiple set-ups previously required.

APPLICATION DATA:

STOCK REMOVAL
.003" to .004"

TOLERANCES
diameter........ .0002"
roundness....... .0001"
taper........... .0001"

FINISH....20-25 microinches

PREVIOUS OPERATION
line boring

3 IN-LINE BORE SIZES
4.125" dia. x 1.500" long
5.118" dia. x 1.250" long
6.299" dia. x 5.125" long

Micromatic tooling for Microhoning applications is constantly furnishing manufacturers with cost reductions, higher production and better functional characteristics. A Micromatic Field Engineer will be glad to discuss your production problems and show you "Why" the proper Microhoning tools will help.

The principles and applications of Microhoning are explained in a 30-minute, 16 mm, sound movie, "Progress in Precision" . . . available at your request.

☐ Please send me "Progress in Precision" in time for showing on ______ (date).
☐ Please have a Micromatic Field Engineer call.
☐ Please send Microhoning literature and case histories.

PRODUCTION THROUGH MICROHONING — PRECISION — MICRO MATIC

NAME ______
TITLE ______
COMPANY ______
STREET ______
CITY ______ ZONE ______ STATE ______ C

MICROMATIC HONE CORP.
8100 SCHOOLCRAFT AVENUE · DETROIT 38, MICHIGAN

GIFTS . . . ***continued from page 47***

As to the donors, large companies, especially, have respected no-gift policies, either for reasons of their own or because they want to conform to the customers' wishes. If these companies are to be considered leaders of American industry, then their stand further strengthens Trion's position.

Complicating the whole Yuletide gift situation is the fact that each company is on both sides of the fence, on the receiving as well as the giving side. Every company is customer to some and supplier to others. What, then, should it do about accepting presents when it gives none?

Many persons may enter into the buying procedure. A machine operator may recognize a need and suggest it to his foreman. The foreman reports the suggestion to the plant manager, who confers with the vice president in charge of manufacturing. If a decision to buy is made, the production manager and engineering department begin studies of the proposed equipment; then a number of office workers are involved in the clerical end of the purchasing function. So who should receive the fifth of Olde Firewater, the personalized fire extinguisher, or whatever the salesman who is favored with the order brings around?

With the exception of liquid Christmas spirit or a box of candy, any gift would be hard to divide. Also, we were determined to keep in mind that no person deserves special compensation for doing a job for which he is amply paid and in which many persons figure. Trion arrived at a simple solution that has pleased everyone in plant and office alike.

The big event takes place on Christmas Eve at the company Christmas party. For several days before this, the purchasing agent, the advertising manager, and one or two others receive any gifts presented to them with profuse thanks. But they must restrain themselves from coveting the gifts or growing too fond of them; for when the donor has left, these men are honor bound to turn the present in.

The next time they see the gift is about one o'clock on the day before Christmas, when a vice president holds up the colorfully rewrapped

package before the assembled employees and beckons one of the girls to draw a name from a box. One by one, all the gifts are distributed in this manner. Everyone has an equal chance of receiving a present . . . even the purchasing agent and the advertising manager.

There is nothing secret about Trion's gift-handling formula. We foresaw that a supplier could become highly annoyed if his gift were intercepted and given to someone he did not know. We have avoided this by advising our suppliers of our plan. They are all aware that their gifts become the property of the Trion employees who win them at the Christmas party. To the donor this should, in fact, prove a more acceptable plan, for as each gift is given away the name of the supplier who sent it is announced.

Of course, this plan would require some modification in the case of large corporations. But if all companies were to adopt it, gifts would eventually be addressed to the organization instead of to the individual, and the problem of receiving Christmas presents would be solved.

THERE'S SOMETHING I WANT TO SEE BEFORE I DIE

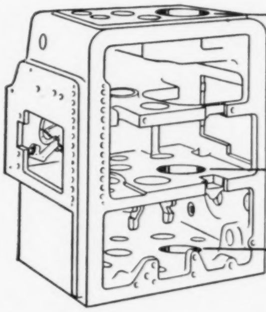
I've watched them make pencils
And stencils
And utensils.
I've been through steel mills
And wheel mills
And rubber heel mills,
Through canneries
And tanneries,
Through pickle factories
Chicle factories,
Copper and nickel factories.
I think forges
Are gorgeous.
I've seen them blow glass up,
Seen molasses molass up,
Seen honey made
And money made.
There is nothing I would pass up.
But what I most long to see
And think it not wrong to see
Is makers of dog food
And cat food and hog food
And cocktail tidbits,
Both eaten and hid bits,
In some way clever,
With calipers or whatever,
Determine what is the right size
For Bite Size.

—Richard Armour

HOW with one set-up MONARCH MICROHONES three bore diameters

Using a three-diameter tool and only one set-up, Monarch Machine Tool Company Microhones three in-line bores in lathe head stocks. Bore diameters are 4.125", 5.118" and 6.299". Stroke of Microhoning tool is changed only once during the working of all three bores. Former method of honing required multiple tooling and set-up.

How Monarch Microhones:



BORE "C"
6.299" Dia. x 5.125" Long

BORE "B"
5.118" Dia. x 1.250" Long

BORE "A"
4.125" Dia. x 1.50" Long

FIRST STROKE SETTING	Bore "A" is Microhoned while guiding on Bore "B" Bore "B" is Microhoned while guiding on Bore "A"
SECOND STROKE SETTING	Bore "C" is Microhoned while guiding on Bore "B"

How This Microhone Tool Operates:

A compound cone in the tool allows any one of the three bores to be Microhoned by expanding or collapsing individual banks of stones and guides. A selector sleeve shifts the cone rod to provide positive control of abrasives and guides.

Micromatic "How" knowledge, obtained through 27 years of experience in designing, engineering and manufacturing of Microhoning equipment for all types of applications throughout the world, can solve your production honing problems.

Learn how Microhoning will give you efficient stock removal, closer tolerances, accurate alignment and functional surfaces.

☐ Please have a Micromatic Field Engineer call.
☐ Please send Micromatic literature and case histories.

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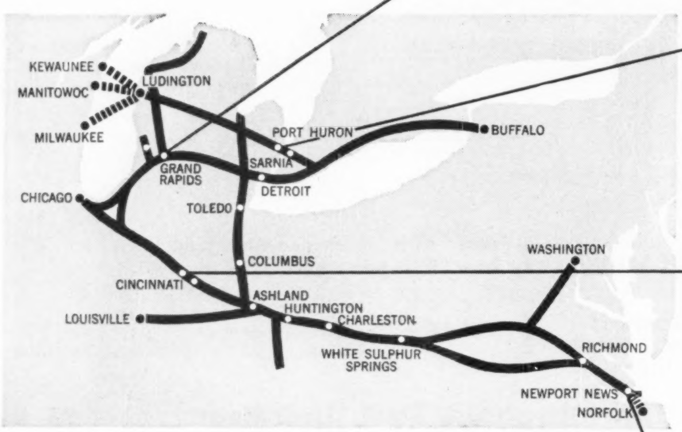
second largest city in the State, has many widely diversified industries and a good labor supply with variety of skills. Excellent transportation. Plenty of good water. Industrial sites of various sizes with track frontage.



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is on the St. Clair River, one of the world's busiest waterways. Detroit, Flint and Saginaw are nearby. Plenty of skilled labor. 185-acre Model Industrial District offers improved sites with all utilities. Other large and small sites available. Pleasant living conditions and unusual recreational facilities.

FERNALD, OHIO

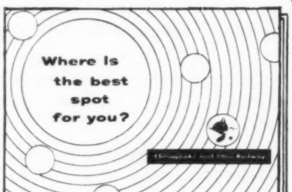
Underground river affords exceptional water supply. Rural location, but with all utilities, and can draw skilled labor from both Hamilton and Cincinnati areas. On main line of C&O between Cincinnati and Chicago.

NEWPORT NEWS, VA.

On Hampton Roads, second busiest seaport in the U. S. Frequent sailings to and from all parts of the world. Sites of various sizes available, including some on navigable water. Delightful year-round climate.

"WHERE IS THE BEST SPOT FOR YOU?"

Write for new booklet describing these and many other choice Industrial Sites available along the C&O. Address: Wayne C. Fletcher, Director of Industrial Development, Terminal Tower, Cleveland 1, Ohio.



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PREVIEWS OF 1957

Color chips and specially lighted inspection booth help Lederle Laboratories technicians control tablet and capsule colors and protect company reputation for product quality.

You'll have to hue to the line

It looks like a banner year for color. With everything from typewriters to refrigerators sporting new shades, the dull, drab product will have a hard time catching the customer's fancy.

But color is not an unmixed blessing for manufacturer and distributor. The normal human eye is a precision instrument when it comes to distinguishing colors—and customers like "matched colors" to match.

Even when color has no direct tie to quality, an off-key component can make the customer feel he's getting a second-grade item. That's why drug producers like Lederle spend so much time and effort on color matching (photograph, right). Food processors, too, pay as much attention to food colors as to taste, size, texture, and other properties.

Color often presents storage and distribution as well as production-line problems. It's just as important to make sure that colors won't fade in storage as it is to match them on the production line. Distributors need a way to touch up damaged finishes, too.

Adequate testing beforehand is the only real answer to the fading problem. But, for touching up damaged areas, manufacturers can now supply distributors and users with aerosol spray cans and brush-tipped dispensers filled with factory-matched paints.

When color is used as a safety or warning device, color blindness needs consideration. Quite a few people are "blind" to one or more color combinations. It's a good idea to back up color applications of this type with variations in shape or marking to make sure warnings are heeded.

One final caution: Make sure the dye or pigment you use is non-toxic. A few colorants that have been used for years have recently come under suspicion. It would be well to avoid them until more evidence is at hand.

New look for electrical equipment

Faster installation at lower cost is a major goal of electrical equipment makers, and new designs are taking a big step forward. For instance, Federal Pacific Electric Company's new line of circuit breakers, enclosures, and panelboards is built to modular specifications, with four standard circuit breaker enclosures and four standardized panelboards to accommodate systems with ratings up to 600 amperes. This standardization of design will, Federal Pacific believes, eliminate the need for custom-built panelboards in most cases. That means a real saving in time, money, and effort for the user.

As part of its new line, FPE is introducing one brand-new circuit breaker: a plug-in, single-pole, E-frame unit that is only 1$\frac{1}{16}$ inch wide—half as thick as those previously available, so that twice as many can be accommodated in the same amount of space. It comes in ratings from 15 to 50 amperes.

Breakers, enclosures, and panelboards are being made available nationally through distributors of Federal Pacific equipment.

New suppliers for basic chemicals

Chemical users will have a better chance than ever before to shop around for the supplier that can offer the best quality, most dependable deliveries, and most complete technical service. There will be new sources for many basic chemicals, inorganic as well as organic.

Solvay Process Division of Allied Chemical & Dye, for instance, just announced its entry into the hydrogen peroxide field, where it will be

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THE OLDER WE GROW, the more we know. This is not only true of people, but of companies, too . . . for a company is only as wise as the knowledge of its combined staff.

FOR 60 YEARS, PANAMA-BEAVER has matured steadily in its program to provide an "easier office-worker life." Since 1896, the company has learned to anticipate the needs of the commercial world before they arose. Among the first to recognize the important role of Vision-Engineered products, PANAMA-BEAVER's research department developed the easy-on-the-eyes Hypoint colored carbon papers plus Lustra Colorful Inked Typewriter Ribbons—especially created to harmonize with all paper stocks and letterheads. Another achievement—the Eyesaver, Parma Pearl and the NEW Ebony Unimasters (for spirit duplicating) with tinted jackets to avoid glare, relax the eyes, relieve harsh contrast and permit faster work.

EXCITING THINGS have already been charted for PANAMA-BEAVER's next 60 years . . . as you will find out when you call your PANAMA-BEAVER man, "always a live wire!"

PANAMA-BEAVER Ribbons and Carbons
Coast to Coast Distribution

Since 1896—"The LINE that can't be matched."
MANIFOLD SUPPLIES CO.
188 Third Ave., Brooklyn 17, N. Y.

competing with such well-known suppliers as Columbia-Southern, Becco, and Du Pont.

Says Solvay: Consumption of hydrogen peroxide has almost doubled since 1950, and new uses—in textiles, plastics, rubber, pulp and paper, wood, food, and chemical processing, as well as in propellants—make its potential seem almost unlimited.

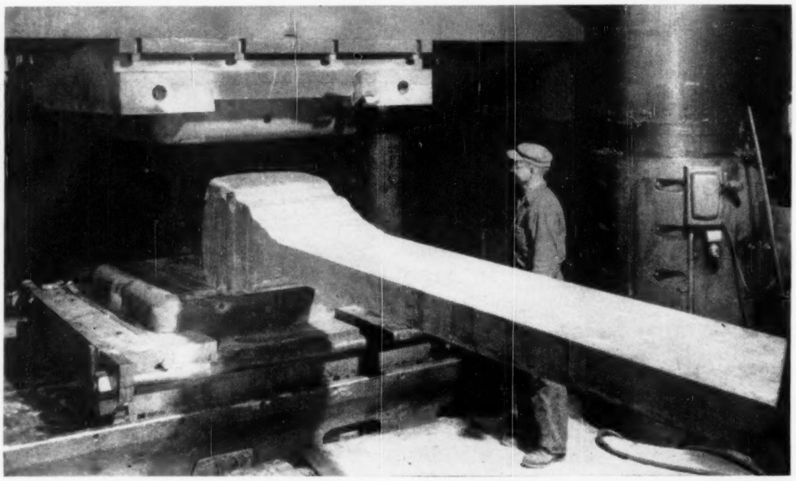
Metals: Fabrication holds the key

Molybdenum may well be a leading candidate for "metal-of-the-year" honors. Fabrication and welding problems that have held back this strong, heat-resistant metal now seem well on the way to solution.

Under Navy sponsorship, a full-dress symposium, covering commercial as well as military applications, was held in Detroit this Fall. Participants noted that substantial improvements have been made in uniformity, ductility, and weldability of wrought products, and the metal is finding new commercial applications in electric furnaces, electron tubes, cutting tools, and casting dies.

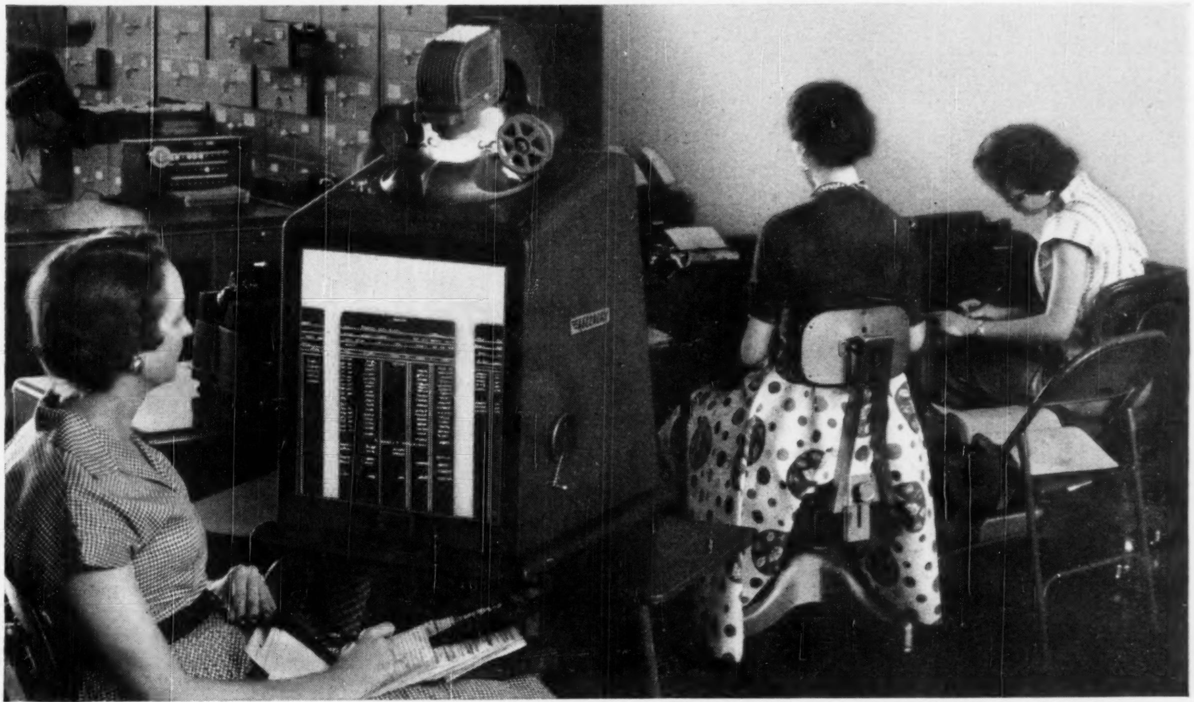
One hurdle still remains: molybdenum's tendency to oxidize at relatively low temperatures. But protective coatings are now ready to help it stand temperatures up to 2,000° F for as long as 500 hours. Since, without protection, the metal goes to pieces at half that temperature, this is progress indeed.

Aluminum is scheduled for many new jobs as older forming methods are improved and new ones introduced. Forging (see photograph below) is a good example.



Better forming methods mean greater latitude in design, lower costs in production of metal parts. Huge frame sections (above) are held to close specifications with improved hand-forging techniques, as this Alcoa set-up shows. Long, tapered, contoured shapes (left) can be made in one piece on new machines like Cyril Bath's radial draw form unit, saving many hours of production time. Stepped extrusions (right) were made by Kaiser Aluminum to show how new metallurgical knowledge permits fabrication of more complex shapes.

APPLYING RECORDAK MICROFILMING TO BUSINESS ROUTINES—NO. 22 IN A SERIES



Checking a customer-ledger card in a Recordak Film Reader

New credit reporting system checks your history in 1 minute

Amarillo Credit Association, Amarillo, Texas, saves $300 a month with Recordak Microfilming. And the stores it serves no longer waste 30-60 hours per month checking customers' records for Association.

By photographing its members' customer-ledger cards in a Recordak Microfilmer—and storing the films at the finger tips—the Amarillo Credit Association delivers incredibly fast service with less clerical help.

Imagine looking up credit information on 15 customers in 15 minutes! It used to take this long just to contact a store's credit manager and read off a list of names for him to check! Now he's spared this tedious job. And where he used to be plagued by forty or so phone inquiries daily from the Association, he now gets one or two.

The Association, on the other hand, isn't held up waiting for credit managers to answer; reports aren't delayed a day as they used to be when answers were received around closing time.

RECORDAK

(Subsidiary of Eastman Kodak Company)

**originator of modern microfilming—
and its application to business routines**

Free . . . "Short Cuts That Save Millions." New booklet shows how more than 100 different types of business—thousands of concerns — cut daily costs with Recordak Microfilming. *"Recordak" is a trademark*

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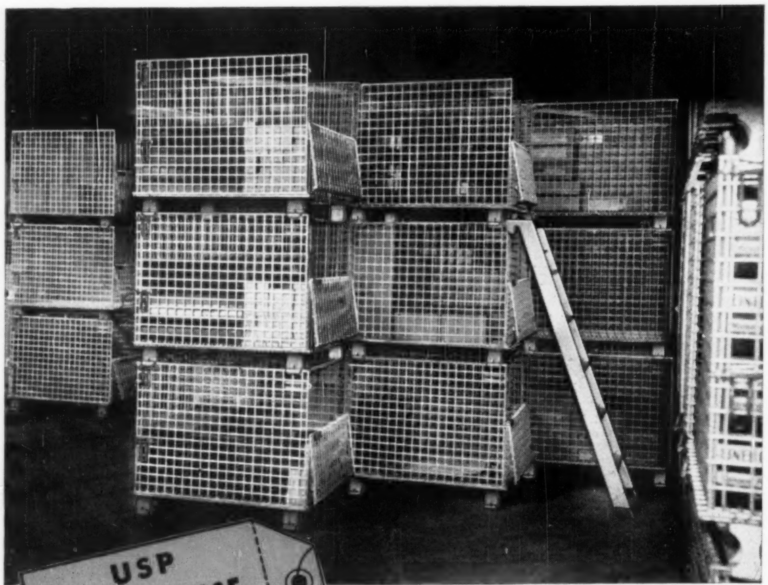
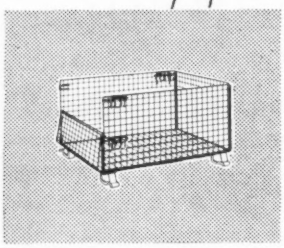


USP Warehouse Palletainers cut inventory costs. Contents are always visible for rapid inventory. Hinged front section permits easy access, even when units are stacked. *Anything* contained by a 2" mesh can be stored more quickly and safely in Palletainers.

Serving industry everywhere!



USP Warehouse type Palletainer features the half-drop end gate for easy access. 2,000 to 4,000 lb capacities.

Warehousing small parts in large quantities? USP Palletainers are the most practical, economical solution for achieving better space utilization plus efficient handling.

Specifically . . . USP Palletainers of the *warehouse* type offer you amazing versatilities for maintaining warehouse stocks conveniently — with contents always visible for fast, easy selection—plus savings in space—complete stacking safety, ease of transport and shipping. All these, plus the 75% storage space savings made possible by the *exclusive* "flat-fold" feature.

USP Palletainers have eliminated the guesswork from warehouse parts handling and storage operation. See for yourself how easily they will solve your problems.

UNION STEEL PRODUCTS CO., Albion, Michigan

USP PALLETAINERS

GENTLEMEN:
Please send me complete information on USP Palletainer application.

Name ____________________ Title ____________

Company ____________________

Address ____________________

City ____________________ Zone ______ State ______

☐ Please have one of your materials handling engineers contact me at once.

The Air Materiel Command, which has sponsored much research on fabrication methods for aluminum, reports that forged ingots as big as 32 inches in diameter have been produced at the Kaiser Aluminum Trentwood plant. U. S. Steel's Homestead Works is forging them.

For the future, George Perkins of Reynolds Metals Company predicts widespread use of aluminum for body panels, as well as for an increasing number of component parts, in automobiles. Comparison of aluminum with other metals on the basis of raw material costs and existing forming machines has, he believes, concealed the potential advantages of the light metal. But a new look, and a new outlook, can bring "real, tangible, dollars and cents savings," he believes.

Magnesium will be another "metal-of-the-year" candidate. It has been chosen as the primary material of construction for the earth satellite; and, fortified by new protective coatings, and armed with a new source of supply (see October, page 126), magnesium should now be ready to move into broad-scale commercial applications.

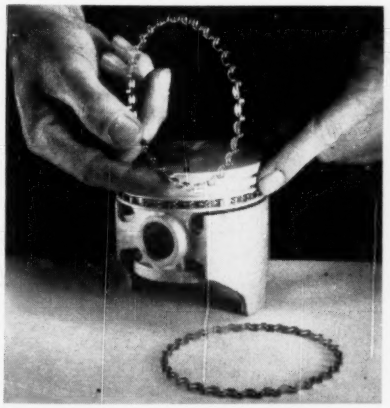
Steel users are upgrading their products, using high alloys in place of lower grades. Designs that are better suited to the newer alloys, improved fabrication techniques, and even changes in government regulations are all paving the way.

A change in tank truck specifications, for instance, now permits use of molded stainless steel units for transporting flammable and poisonous liquids.

The desire to reduce fabrication costs is spurring interest in free-machining alloys like the leaded steels. Newest of these is Alco Products' *Hi-Qua-Led*, now obtainable in ingots to 50,000 pounds, and forged and rolled rings to 145 inches in diameter. Compared to ordinary carbon steel, Alco says, machining time is reduced 50 to 70 per cent, and tool life increased as much as 16 times.

Ceramics: tubes, tools, and magnets

From electron tubes and nuclear reactors to industrial furnaces and cutting tools, ceramic-type materials (oxides, carbides, nitrides) are once



More stainless steel will be used in autos as well as airplanes (see September, page 81) in the year ahead. These new piston ring expander-spacers were designed by Sealed Power Corp., are made of Allegheny Ludlum Steel Company's type 2D1 material.

again proving their ability to stand terrific heat and chemical attack.

But these are not the only fields in which they are useful. Ceramic-type magnets, for example, are proving as interesting for their mechanical and electrical properties as they are for the fact that they use no critical elements.

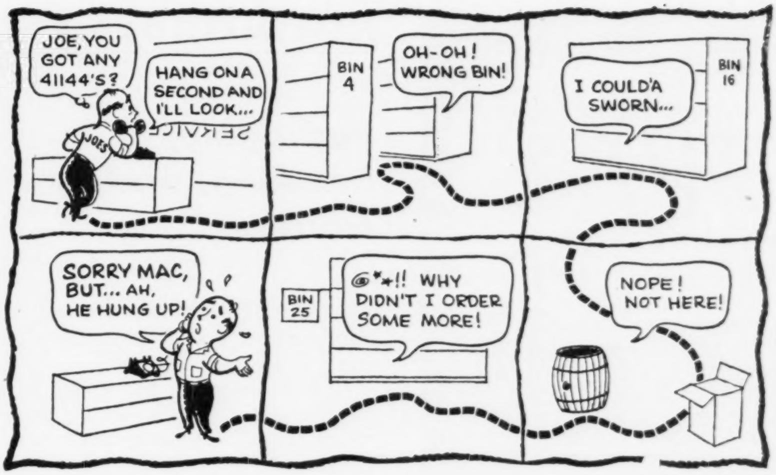
For example, Indiana Steel Products Company reports that makers of can openers, cabinet latches, conveyors, and toys are adopting its *Indox I* ceramic magnets because they are light in weight, easy to mold, and highly resistant to demagnetization. This is a big advantage because it means that these ceramic units can be magnetized before assembly.

Ceramic tool tips, already attracting wide attention are now finding their place in the metalworking field. General Electric's Metallurgical Products Department reports that several companies are now using carbide tools where cutting speeds are below 1,000 feet per minute, and changing to the ceramics for speeds above, thus using each type of tooling in its most economical range.

There is good news for users of zirconium oxide refractories, too. Announcing price reductions on molded shapes, Zirconium Corporation of America predicts much wider use of this material in the chemical, glass, and pharmaceutical fields, as well as in the manufacture of ceramic colors.

—A. R. G.

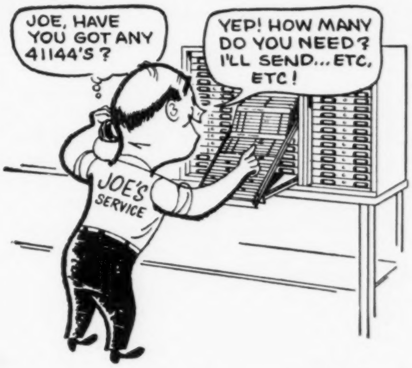
more previews on page 96



and then he bought an

ACME VISIBLE

INVENTORY CONTROL SYSTEM



Know *what* you have, *where* it is and *when* you will need more! Regardless of the size of your business, inventory control enables you to get faster, more dependable results with substantial savings in work, time and money.

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UP TO $50,000
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. . . all from use of
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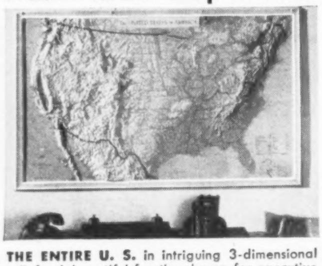

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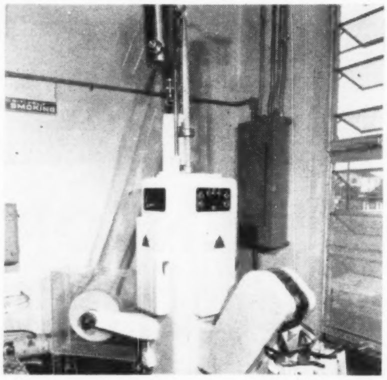
Packaging, handling, and storage

What does 1957 promise for packaging, handling, and storage? Here are a few happy portents:

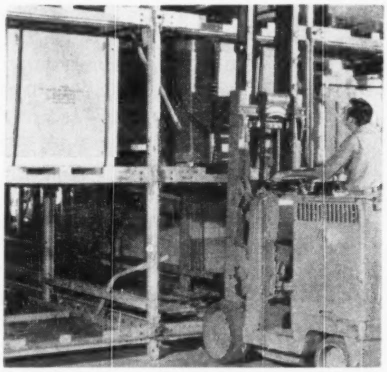
Casing, uncasing, palletizing, and transportation are becoming high-speed, fully automatic operations. Even fork trucks now run themselves.

Skin packaging (photo at right) is now ready for a host of new jobs.

European equipment will supplement American machines. The Swedish *Hermetet* system for setting up, filling, and sealing lined cartons, was introduced earlier this year (see July, page 62). A second Swedish unit is described below; and another is on the way. —A. R. G.



AUTOMATIC PACKAGING SYSTEM transforms a flat sheet of pre-printed, polyethylene-coated paper into filled, sealed pyramidal containers for milk, ice cream, and other liquid and powdered products. Developed in Sweden, this *Tetra Pak* machine and the paper used with it are available through Crown-Zellerbach Corporation.

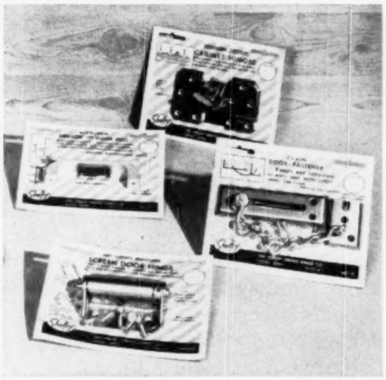


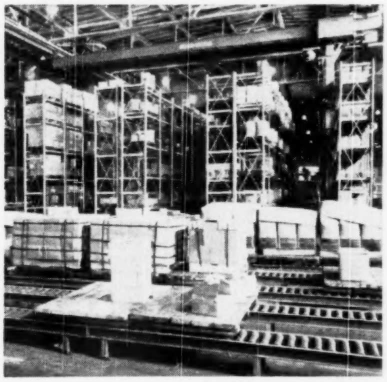
LIVE STORAGE RACKS, using heavy duty rollers, make it easy to slide big loads into place. They can also be pushed through tunnel-type racks so they'll exit at the far end on a first-in, first-out basis. Alver-Ferguson Company engineers these racks in a variety of sizes to fit the products being stored.

PLASTIC FILM is the belting for this conveyor—and it's said to be well able to "take it." DuPont, which supplies this *Mylar* polyester film, points out that it is strong, flexible, heat-resistant, nontoxic, and nonabsorbent. The belting is made by laminating two 3-mil sheets of film, costs about $1.50 a foot in the 30-inch width.

DRIVERLESS TRUCK needs only a white line to guide it along any predetermined route through the plant. A further development of Barrett-Cravens' *Guide-O-Matic* electronic guiding system (see April 1955, page 99), this B-C unit uses an optical device, with photoelectric cells in the "sniffer box" to "sense" the line and keep the truck on its course.

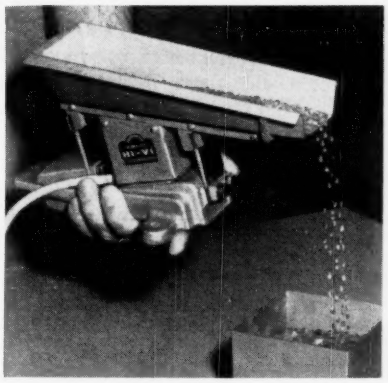
SKIN PACKAGING combines display and protection. Clear plastic sheeting is formed right over the product and its backing card, follows contours so closely that it's almost invisible. Special adhesive on Gair boxboard used here holds film firmly to backing. Hardware, rubber goods, and glassware are among the many products now packed this way.





PALLET RACKS are designed to be assembled without bolting or welding, with cross-members at any desired level. Palmer-Shile Company, the manufacturer, says they're unusually strong and rigid, and can be built to specifications in single or multiple sections. Those pictured here are set up for servicing by a fork-equipped crane.

VIBRATING FEEDER, midget size, is designed to move and meter powdered materials and small parts. It's the newest in the Eriez *Hi-Vi* line of electro-magnetic and permanent magnet feeding devices, and weighs only seven pounds. Eriez says it will operate directly from a standard 115-volt, 60-cycle AC line. Feed rate is adjustable.



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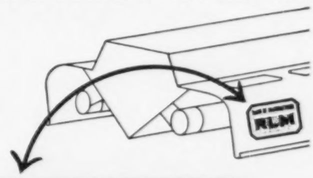

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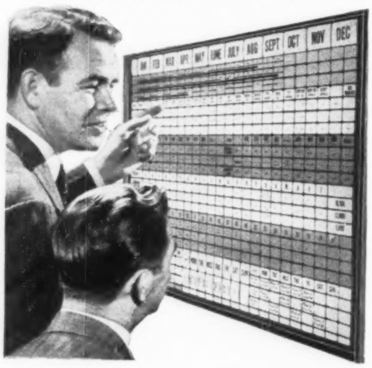

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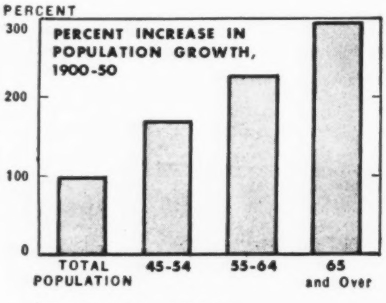
NEW AMERICAN WORKER . . . *continued from page 54*

tion of persons over 45 in the total population increased from 18 to 28 per cent, those over 65 from 4 to 8 per cent. But job openings for older persons have not kept pace with this substantial increase. Despite growing attention to the problem, the fact is that even middle-aged persons have difficulty finding work today.

In a survey made in late 1954 by all state employment security agencies, it was found that more than



Source: Bureau of the Census.

three-quarters of a million workers over 45 years of age were unemployed and actively seeking work at local employment offices. Most employers continue to put age limits on hiring, often within the 34-45 bracket. Even when age limits are not formally set, in actual practice older workers are often passed over in personnel recruitment.

Worker Productivity. Measured in dollars of the same purchasing power, the nation's annual output of goods and services has doubled in the past 25 years. But employment was up only 36 per cent, and the average work week dropped from 44 to 40 hours. The production increase has thus been due mainly to increased real output per man-hour. On a rough, national scale, this measure increased on the average by 1.8 per cent from 1910 to 1939. From 1939 to 1947, the annual rise was 2.2 per cent, but from 1947 to 1953 it reached 3.8 per cent. Over the entire period from 1910 to 1953, the average increase rate was 2.1 per cent.

If a 2.5 per cent annual increase is maintained in the nonfarm production index and a 3 per cent gain reached in agriculture, our national output should reach at least $500 billion by 1965. The result will be a corresponding increase in income, services, and benefits to be shared by the whole of the working population.

Thus, on every front, the American work force has increasingly shared our economic growth. But concealed in this record of rising averages are problems that this very growth may well accentuate. For instance, there is the danger that growing demands for higher skills may limit the utility of older workers and shunt aside those unfitted, either by education, nature, or experience, to master newer techniques. On the other hand, the use of such skills as demanded by more automation and improved industrial techniques may not offer sufficient creative challenge to workers of a higher educational level. Problems of such human nature are bound to persist. A rising productivity index alone is not the answer. To insure the worker of tomorrow satisfactions beyond those found in a fatter payroll will be our society's toughest challenge and responsibility.
—G. A.

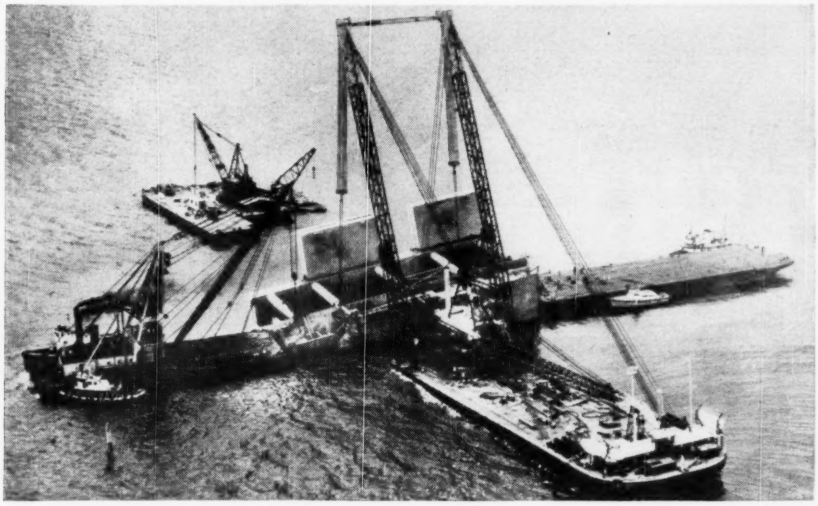
This article and accompanying charts are based on material from the U.S. Department of Labor's study, The New American Workers' Fact Book, 1956. *Copies are available from the Government Printing Office, Washington, D.C., at a price of $1.50. Some of the 1955 figures cited have since shown an increase, based on newer data. See* Dun's Review and Modern Industry, *"The Trend of Business and Compass Points Quarterly," November 1956.*

"It's always a constant battle between me and John to see whose peace of mind is more important."

Only STEEL can do so many jobs so well

Swampland Bucket Brigade. This cable tramway stretches through 3½ miles of Georgia swamp, hauling clay to the plant of a brick company. The buckets are carried on an endless 30,000-foot length of USS Tiger Brand Wire Rope. In six years, the tramway has carried over a million tons of clay; it has reduced hauling costs by 66%.

The Beauty Is More Than Skin Deep. Look at the *doorway* for a minute. It is made from lustrous, permanently attractive USS Stainless Steel. This is the entrance to a research laboratory that is in constant use. The Stainless will stay bright indefinitely, since the surface beauty goes all the way through. Stainless is hard, too, so it won't dent and scratch like softer metals.



The Greatest Lift In the World. That derrick is lifting 800 tons of dead weight—an all-time world record. The total uplift being exerted is over 1300 tons. To build the derrick and barge required about 2000 tons of steel, and 40 tons of welding rods were needed. Nine miles of Wire Rope are used in the rigging of this equipment.

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SEE the United States Steel Hour. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

YANKEE KIDS AT SCHOOL ABROAD

Correspondence courses aren't only for men eager to get ahead; American children abroad are major enrollees, too.

FOR EVERY 10,000 Americans working overseas, there are about 6,000 children of school age with them. But there are few schools conducted in their own tongue or up to what the parents consider as American standards.

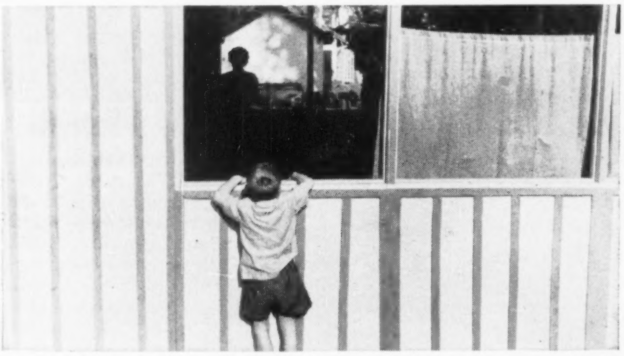
The figures come from a survey of U.S. corporations with foreign operations, a survey conducted by an unusual educational institution, the Calvert School of Baltimore, Md.

Calvert mails instruction to some 8,000 children here and overseas. Most of them, like Eighth-Grader Van Dyck Bucher (photograph above), son of a motion picture director-cameraman stationed in Jakarta, Indonesia, are lone scholars, taking instruction with their mothers substituting as teachers (and using special parent-teacher lesson-guides).

Some companies with permanent installations have set up their own schools; far-seeing ones even provide mixed classes for children of native and U.S. employees. In about 60 locations in 38 countries, there are enough Calvert students to make it possible to organize regular classes like those in Saigon (below).

Calvert, a day school with 400 Baltimore students, got into correspondence teaching when whooping cough epidemic closed it down in 1905. Today it has children in all U.S. states as well as abroad.

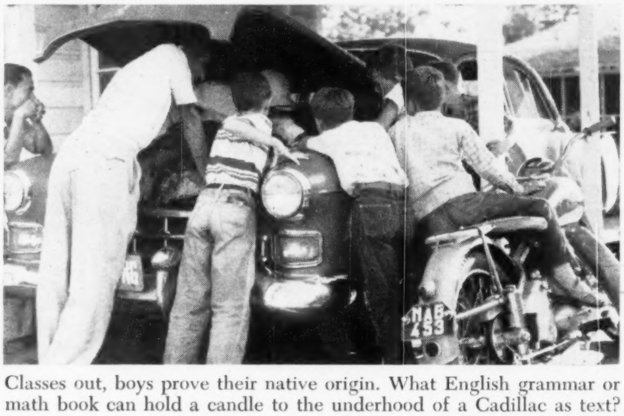
—A.G.L.



Outside looking in, this Yankee tyke watches older playmates as classes based on U.S. correspondence course open in Saigon, Viet Nam capital.

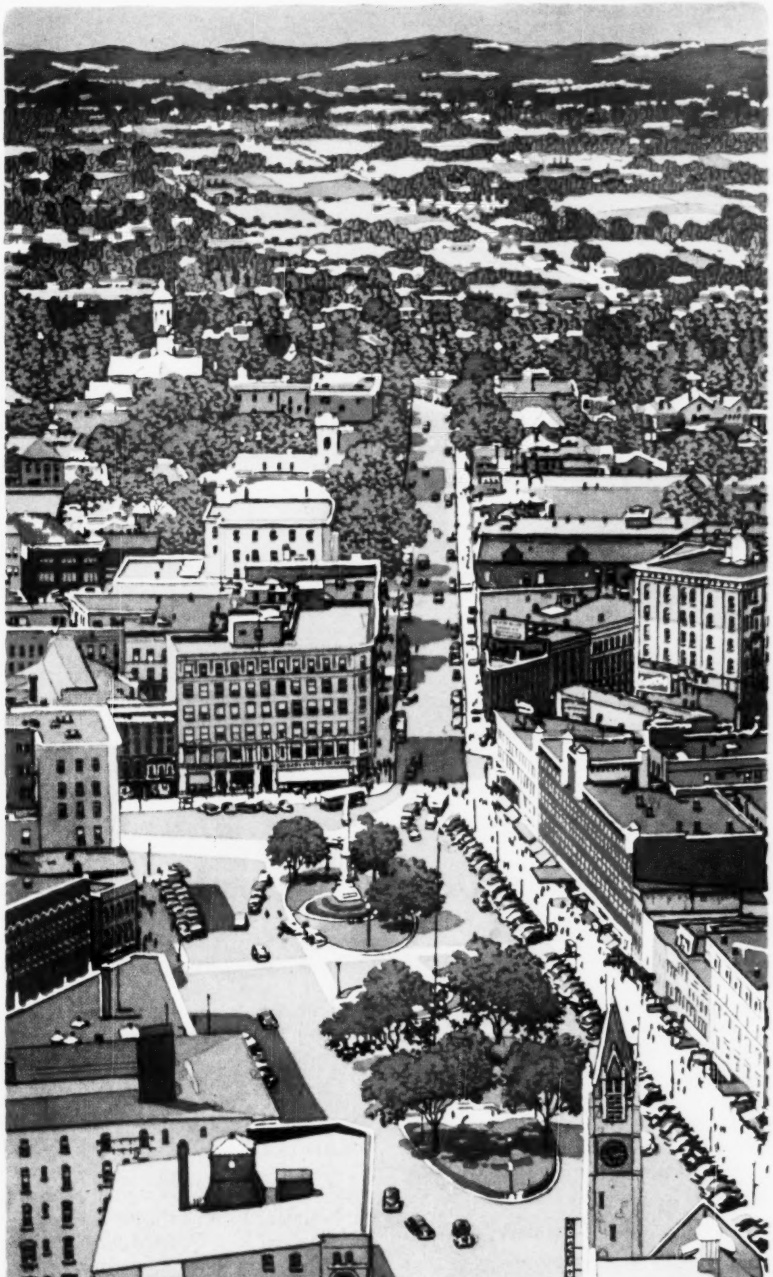
No bus, family car, or limousine takes Saigon youngsters to school. They go by exotic pedicab.

Mailman is link with Calvert for most students; numbers give opportunity for classes, however.



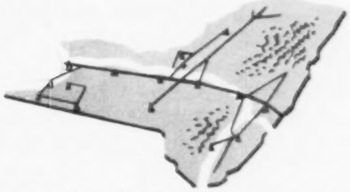
Classes out, boys prove their native origin. What English grammar or math book can hold a candle to the underhood of a Cadillac as text?

"UPSTATE, N.Y."



HERE is the busy Public Square at Watertown, a city that is a gateway to the rapidly expanding St. Lawrence River region. Close to large markets, it is a profitable place to locate a business. Set in the midst of a natural vacationland, with a healthful climate, it's a fine place to raise a family, too.

This area is typical of all "Upstate, N.Y.", which offers an unusually *complete* set of advantages to executives responsible for expansion programs. Here you'll find plenty of skilled and unskilled labor ...superb transportation...and a wealth of raw materials. Dependable, low-cost electricity is supplied by Niagara Mohawk. To find out more about "Upstate, N.Y." for your company's expansion, write Earle J. Machold, President, Niagara Mohawk Power Corporation, Syracuse, New York.



The Niagara Mohawk System serves a land rich in resources, a land of opportunity for business seeking new facilities for making a product and new markets in which to sell.

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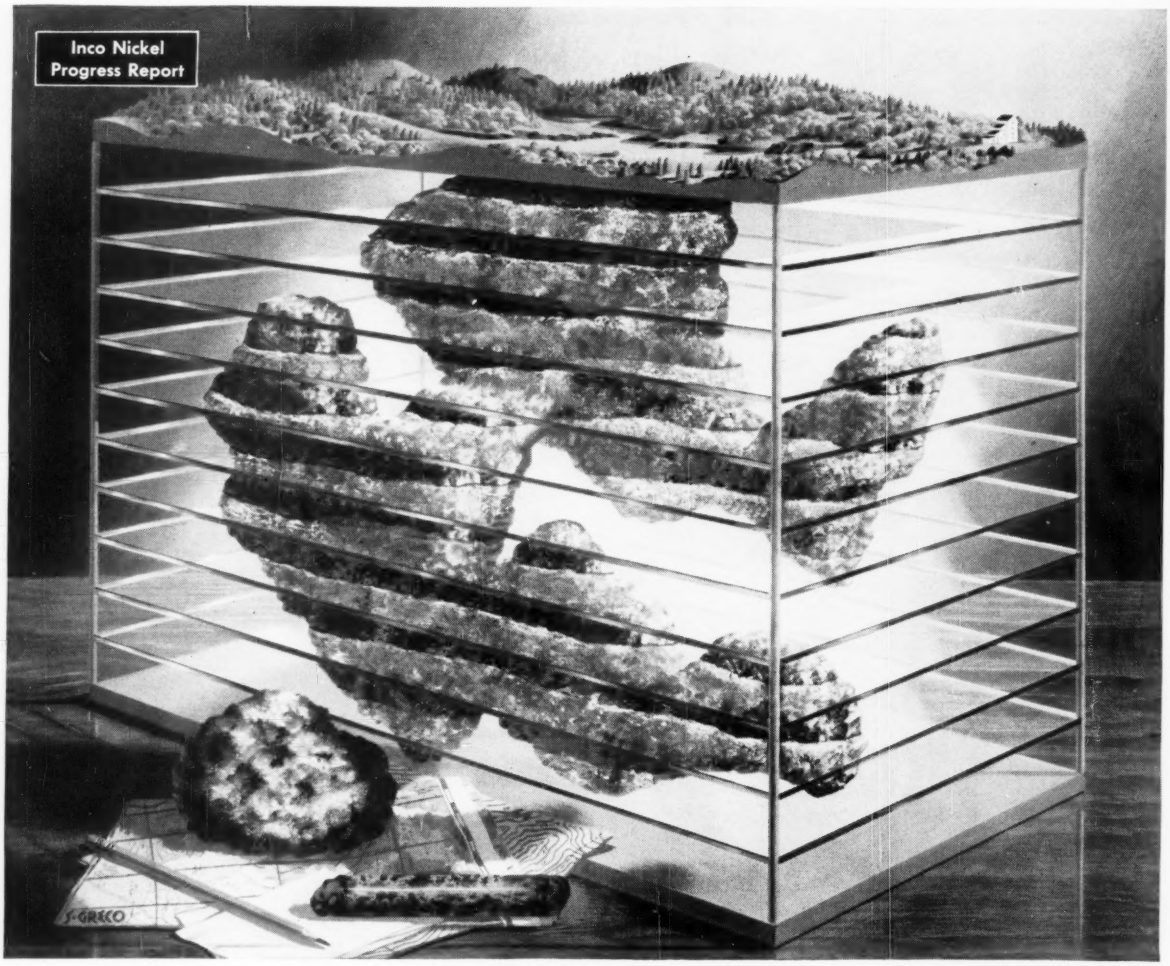

Inco mine engineers construct a 3-dimensional "picture" that shows where new, untapped ore bodies lie.

This 3-D model of an ore body shows where future supplies of Inco Nickel will be mined

How do Inco engineers keep a mine "alive"? For one thing, they try to learn as much as possible about the location of ore for the future.

New levels—new exploring

As soon as they open up *new* levels, the engineers start up exploratory drilling, to probe and "feel" in many directions.

Their hollow-shafted drills bring out specimen cores that show where there is worthwhile ore and where only worthless rock.

Hundreds and hundreds of ore samples

These ore samples enable International Nickel engineers to build small models of their mines' ore bodies. So they know where each ore body lies, how large it is, and of what grade.

They know, as well, how to get that ore out of the ground in the safest, most sensible, most economical way possible—know what shafts may have to be sunk, what tunnels and drifts to drive. Know, in a word, how to reach and mine every possible ton of usable ore. And, having mined it, how to extract every possible pound of useful metal.

Reserves—output—at new highs

Today Inco has larger reserves than ever before—although some of this ore lies a mile or deeper underground. And the company also reports another fact: its multi-million dollar "mine-more" program makes possible today's peak output of Inco Nickel. And has made possible increases in production for five successive years.

"Mining for Nickel," color film, is loaned to technical societies, universities, industry. The International Nickel Company, Inc., Dept. 221e, New York 5, N. Y.

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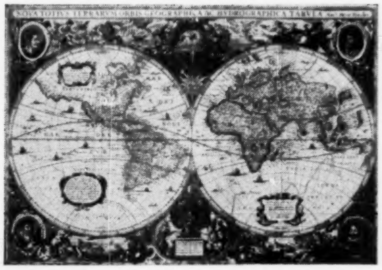
INCO TRADE MARK **International Nickel**

Producers of Inco Nickel, Nickel Alloys, Copper, Cobalt, Iron Ore, Tellurium, Selenium, and Platinum, Palladium and Other Precious Metals

INTERNATIONAL MARKETS



ALEXANDER O. STANLEY, *Editor*
MARION L. WEAVER, *Staff Assistant*

Exporting plants instead of products appears to be the new trend—and it takes more know-how. For companies considering overseas manufacture, DR&MI has done a basic research job—bringing together comparative facts and figures to help in choosing investment areas.

SO YOU WANT TO INVEST ABROAD . . .

How 46 Countries Compare

WITH THE FINAL STROKE of the pen, months of intensive research and executive conferences culminated recently in the contract signed by the International B. F. Goodrich Company for Plant No. 14—in Lima, Peru.

In another part of the world, at Salisbury, Southern Rhodesia, a new Pepsi-Cola bottling plant—the 254th overseas unit of this worldwide organization, was formally opened, prepared to assuage local thirst to the extent of a million cases of Pepsi-Cola per year.

With increasing frequency, similar scenes are being duplicated in many cities of the world, in many of the boardrooms of U.S. companies. During the past five years direct investments overseas have flowed out at the rate of slightly under $1.5 billion annually. And this may be a conservative appraisal since it includes only the investments of a group of 442 companies *regularly* filing data with the Office of Business Economics, Bureau of Census.

While investments abroad are not a new development—in 1914 for example, they totalled $2.6 billion—1946 saw the beginning of a dramatic expansion in foreign branch activities. In the following decade overseas investments of the 442 companies rose almost threefold, to $19.1 billion. *And 1955 earnings of this group hit a record level of $2.8 billion.* This pattern of progress may have been intensified in 1956.

Investment Pressures Rise with Progress

Forecasts of the immediate future would fall largely within the realm of guesswork. We know that, in the past, investments abroad tended to expand as the U.S. economy prospered, and to contract when U.S. business was sick. But new and powerful influences are at work today that may negate the traditional patterns.

For one thing, we are rapidly becoming a "have-not" nation in many strategic materials—and especially so as our internal demands mushroom. Also, competitive factors are almost compelling many U.S. companies, formerly content to limit themselves to direct merchandise exports, to carry their manufacturing facilities closer to market. And because the markets themselves are blossoming and better able to support new industries through increased purchasing power, the inducement to open branch plants is strong.

Finally, foreign governments themselves give impetus to the investment trend. Through an array of controls that extend into almost every channel of commerce and industry, the difficulties of the exporter grow each day. And not only currency-exchange controls are involved. Import quotas, customs regulations on packing and packaging, registration of trademarks and brand names, filing of formulae on pharmaceuticals are just a few of the requirements that beset the harried exporter. It is no wonder, then, that the manufacturing exporter eyes the risks of direct investment with some tolerance.

Mass Investment Requires Methodical Approach

Foreign governments' pragmatic philosophy of nurturing home indus-

tries is here to stay. And that American management is facing up to this trend is amply evident. But the limited techniques that were developed for occasional investment in the past may be inadequate for mass investment in the future. Determination to invest abroad must, of course, reconcile many factors. But these mostly involve individual consideration of policy and programming.

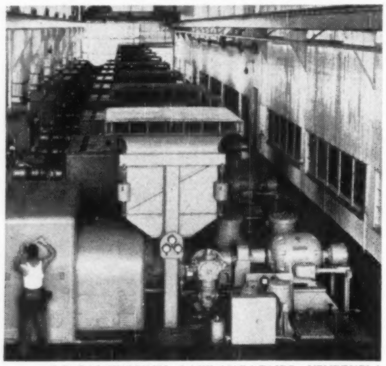
More extensive, more methodical patterns of research will be required. A step in this direction is the study made by DUN'S REVIEW AND MODERN INDUSTRY of certain basic investment factors (see pages 104-109) that will assist in comparing 46 of the 75 key world markets. This group constitutes the specific areas in which we are already heavily committed and where our investments are likely to expand. These 46 countries account for almost 80 per cent of the $27 billion interchange of U.S. exports and imports.

BASIC INVESTMENT FACTORS: *U.S. Investments and Loans*

A. Direct investments abroad by U.S. companies at year end 1955. *Based upon constant survey on 442 companies by Office of Business Economics, U.S. Dept. of Commerce.*
B. Cumulative foreign loans and credits for 22 years to mid-year 1956 by the Export-Import Bank of Washington.
C. Mid-year 1956 commitments including undispersed authorizations of Export-Import Bank of Washington.
D. Mid-Year 1956 commitments under the U.S. Guaranties Program of the International Cooperation Administration through Exim Bank.
E. 1955 volume of trade-interchange with the United States (consolidating all exports and imports).

Code Number	A (in $ millions)	B (in $ millions)	C (in $ millions)	D (in $ millions)	E (in $ millions)
1. CANADA	6,464.	375.6	—	—	5.857
2. PUERTO RICO	—	.4	—	—	.916
LATIN AMERICA					
3. Argentina	446.	286.2	136.1	—	.273
4. Bolivia	11.	47.0	35.7	—	.078
5. Brazil	1,107.	986.7	546.9	—	.872
6. Chile	636.	158.3	69.4	—	.291
7. Colombia	272.	103.7	25.6	—	773
8. Costa Rica	61.	23.0	19.4	—	.071
9. Cuba	723.	116.4	22.0	—	.873
10. Dominican Republic	134.	3.3	—	—	.122
11. Ecuador	25.	40.3	28.9	—	.098
12. El Salvador	24.	1.8	.1	—	.108
13. Guatemala	103.	2.6	2.6	.494	.127
14. Haiti	18.	40.3	30.4	—	.048
15. Honduras	101.	2.7	—	—	.056
16. Mexico	599.	380.9	204.9	—	1.096
17. Nicaragua	—	6.1	.6	—	.064
18. Panama	479.	8.5	1.0	—	.096
19. Paraguay	—	17.2	8.0	—	.009
20. Peru	301.	163.6	124.6	.050	.230
21. Uruguay	74.	49.2	10.8	—	.053
22. Venezuela	1,424.	65.8	12.1	—	1.138
EUROPE					
23. Austria	28.	27.2	4.5	—	.090
24. Belgium	133.	200.0	65.7	.132	.561
25. Denmark	39.	30.0	13.3	.140	.126
26. Finland	18.	135.1	79.4	—	.084
27. France	378.	1,545.2	906.4	4.231	.560
28. Western Germany	330.	77.7	10.1	12.059	.960
29. Italy	154.	182.2	51.0	47.357	.535
30. Netherlands	159.	303.1	64.4	4.981	.624
31. Norway	43.	61.0	29.1	—	.136
32. Portugal	26.	7.4	1.5	—	.061
33. Spain	56.	52.4	12.0	—	.212
34. Sweden	95.	17.1	—	—	.246
35. Switzerland	40.	—	—	—	.310
36. United Kingdom	1,420.	22.5	—	9.359	1.539
AFRICA—ASIA—OCEANIA					
37. Egypt	72.	7.4	.2	—	.103
38. Liberia	261.	25.3	21.0	—	.061
39. Union of So. Africa	257.	150.7	138.9	—	.356
40. Australia	494.	7.3	5.1	—	.327
41. India	96.	16.2	.2	—	.408
42. Indonesia	86.	200.0	97.6	—	.286
43. Israel	—	135.0	119.8	—	.107
44. Japan	126.	360.0	92.8	2.744	1.075
45. New Zealand	42.	16.1	16.1	—	.095
46. Philippines	226.	118.6	92.0	.450	.590

Reference Sources: Page 110



G-E GAS TURBINES, LAKE MARACAIBO, VENEZUELA

Study of basic investment factors splits into three fundamental parts. In Tables A to H are the several economic indices that help spell out the range of comparative *dollar* values; in Tables I through M are the *resources* in men and materials available to industry; in Tables N through Z is the range of *legal* investment controls.

Latin America—
No. 1 Investment Area

In the distribution of dollar investments reported in Table A, Latin America leads the field with $6.5 billion. Canada runs a close second with $6.4 billion; Europe is third with $2.9 billion; Africa, Asia and Oceania run fourth at $1.6 billion, with recent reports showing a rising interest in this area. Puerto Rico, part of the U.S. family in a free Commonwealth Status, has also been included in this study because of its intensified industrialization. Here 410 new and mostly U.S.-owned factories have been established since 1947.

The degree of confidence shown by American business in investing risk capital can be gaged by a study of Tables B and C of the "credit-worthiness" indicated by the volume of loans and credits, both to companies and countries, made during the past 22 years by the Export-Import Bank of Washington. Latin America with $2.5 billion almost shares first place with Europe ($2.6 billion), while the Africa-Asia-Oceania bloc is in third spot with $1 billion. Canada does not participate in this program, but any reference to its "credit worthiness" would be redundant.

The U.S. Guaranties program of the International Cooperation Administration (Table D), though in existence eight years, expanded its activities sharply only in the last three years when its commitments shot up threefold to a $91 million level. It is a comparatively new and untried index, and may become a valuable guide in the future.

It is interesting to note that the preponderance of guarantees is in the European area, which accounts for 95 per cent of the almost $82 million committed. Are these anxious investments? It may be that the average individual European investment tends to be larger, which makes guarantees more desirable. Or it may be that, because of the proximity to Moscow's shadow, new investors are

BASIC INVESTMENT FACTORS: *World Trade—National Income—The Plants—The Working Population—The Basic Economy*

F. 1955 volume of trade-interchange with the world (consolidating all exports and imports).
G. 1954 National Income converted into U.S. dollars. *1953 figures are cited for Guatemala, Paraguay, Peru, India, Israel, Union of South Africa; 1952 figures are cited for Colombia, Honduras, Venezuela, Indonesia. Foreign currencies are converted at the rate prevailing in the reported year.*
H. Percentage gain or loss in National Income since 1949.
I. Total number of manufacturing establishments. Year: 1954 except when otherwise designated by small numeral suffix Code: 1953 is ^{2}; 1952 is ^{2}; etc.
J. Total economically active population. Years: 1955–1946 with 1950-median year. Year of record is designated by small numeral suffix. Code: 1955 is ^{5}; 1954 is ^{4}; etc.
K. Total wage earners and salaried employees in manufacturing activities. Year of record exactly comparable to that in Table J.

Code Number	F (in $ billions)	G (in $ billions)	H (% gain or loss)	I (in thousands of units)	J (in millions of units)	K (in millions of units)
1 CANADA	9.185	24.000	49%	38.1	5.4^{5}	1.268
2. PUERTO RICO	.956	.961	47%	1.9	.6^{4}	.067
LATIN AMERICA						
3. Argentina	1.994	7.488	30%	81.5^{0}	6.4^{7}	1.051
4. Bolivia	.183	—	—	.9^{9}	1.0^{0}	.051
5. Brazil	2.730	11.000	103%	11.2	17.1^{0}	1.943
6. Chile	.851	4.225	310%	4.1^{1}	2.0^{2}	.358
7. Colombia	1.255	2.290	57%	7.8^{5}	—	—
8. Costa Rica	.166	—	—	3.2^{1}	.2^{0}	.021
9. Cuba	1.089	1.715	10%	—	—	—
10. Dominican Republic	.213	.471	235%	3.4	—	—
11. Ecuador	.179	.575	329%	.1^{1}	1.2^{0}	.208
12. El Salvador	.199	—	—	.2	.6^{0}	.041
13. Guatemala	.203	.558	90%	.9^{3}	—	—
14. Haiti	.074	—	—	—	1.7^{0}	.033
15. Honduras	.106	.210	90%	.2^{1}	.6^{0}	.051
16. Mexico	1.505	6.825	131%	—	8.3^{0}	.663
17. Nicaragua	.147	—	—	—	.3^{0}	.037
18. Panama	.097	.288	105%	—	.2^{0}	.010
19. Paraguay	.325	.095	−12%	—	.4^{0}	.068
20. Peru	.571	1.069	29%	.3^{2}	—	—
21. Uruguay	.409	—	—	24.2^{1}	—	—
22. Venezuela	2.806	2.775	80%	—	1.7^{0}	.111
EUROPE						
23. Austria	1.586	2.700	73%	—	3.3^{1}	.710
24. Belgium	5.623	6.600	30%	—	3.4^{7}	1.118
25. Denmark	2.214	3.335	13%	7.2	2.1^{3}	.526
26. Finland	1.557	2.800	115%	5.5^{3}	1.9^{0}	.359
27. France	9.487	32.200	61%	—	20.5^{46}	3.734
28. Western Germany	11.960	28.000	86%	50.8	22.0^{0}	5.968
29. Italy	4.563	15.300	41%	631.8^{1}	21.3^{4}	3.183
30. Netherlands	5.895	5.265	—	116.0^{0}	3.8^{7}	.795
31. Norway	1.723	2.630	38%	6.2	1.3^{0}	.315
32. Portugal	.681	1.600	−23%	5.8^{2}	3.2^{0}	.481
33. Spain	1.064	24.300	—	—	10.7^{0}	1.904
34. Sweden	3.719	7.725	41%	15.0^{3}	3.1^{0}	.888
35. Switzerland	2.797	5.475	38%	—	2.1^{0}	.713
36. United Kingdom	19.348	40.720	4%	58.9^{1}	22.5^{1}	8.121
AFRICA-ASIA-OCEANIA						
37. Egypt	.920	—	—	3.6	8.3^{7}	.390
38. Liberia	—	—	—	—	—	—
39. Union of So. Africa	2.380	3.810	187%	13.3^{2}	5.2^{1}	.397
40. Australia	3.731	8.785	64%	49.1	3.2^{7}	.739
41. India	2.632	21.200	44%	6.4^{2}	101.7^{1}	3.480
42. Indonesia	1.535	7.061	250%	—	—	—
43. Israel	.411	.525	33%	7.4^{0}	—	—
44. Japan	4.482	17.000	106%	172.6^{3}	40.5^{4}	4.850
45. New Zealand	1.426	2.220	37%	8.3	.7^{1}	.159
46. Philippines	.946	3.719	337%	29.4^{8}	7.4^{8}	.331

Reference Sources: Page 110.

more sensitive to military and political risks and prefer the umbrella of government guarantee. The fact is that the further west the countries, the lower the volume of guarantees.

Latin America—No. 1 Trading Partner

Our interdependence with Latin America is strikingly shown by the figures in Tables E and F. Last year our total exchange of merchandise and materials (U.S. exports and imports combined) reached the level of $6.5 billion. Europe ran second with $6 billion; Canada, third with $5.8 billion; and Africa, Asia, and Oceania were fourth with $3.4 billion.

We accounted for 40 per cent of the $15 billion worth of goods Latin America bought or sold. Of the thumping $69 billion of European commodities criss-crossing the channels of international trade, we absorbed or furnished slightly under 9 per cent. And of the $18 billion of outbound and inbound cargo from Asia, Africa, and Oceania, the United States accounted for 13 per cent.

Latin America Accents the Potential

The national income of countries affords another clue to potential areas of investment.

The $178 billion total racked up by the 14 European countries during 1954 emphasizes their dominant position as worthwhile markets for the sophisticated investor. The growth of purchasing power since 1949 within certain national entities has been especially significant—Austria, up 73 per cent; Finland, up 115 per cent; France, up 61 per cent; Germany, up 86 per cent. Important headway was also made in most other countries of this bloc. (Tables G, H.)

But the growth of income in Latin America has been staggering. Gains run up to 100–200–300 per cent. If the total income of the 14 Latin American countries on which income figures are available reaches only a comparatively modest $39 billion, the rate of growth places the accent where it belongs—on the potential.

Latin America can count itself lucky because it has only a comparatively small investment to depreciate in old plants and old equipment.

When you put together the ingredients of a fast-growing population, a rising standard of living, a wealth of urgently needed natural resources, and proximity to wealthy and peaceful economic partners such as the United States and Canada, you have a powerful formula for progress in the future.

Because of the natural resources (Tables L, M) available in so many of the Latin American countries, the investor has less need to import basic materials; so he saves precious dollar exchange. And as money is spent internally, first to extract, then to process the materials, an immediate accretion to local purchasing power results. This helps to increase absorption potentials for locally manufactured goods.

The Hard Realities

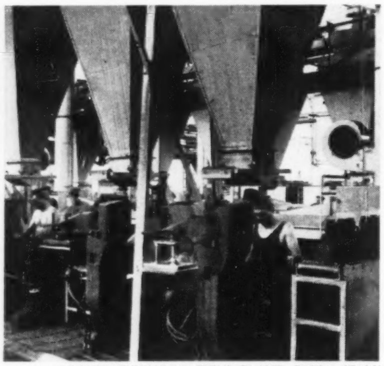
But the rose-tinted vision must be corrected by present-day facts. Of the 22 Latin American countries only five—Argentina, Uruguay, Brazil, Chile, Mexico—would qualify as having comparatively good-sized industrial components, although four others are fast developing their industrial activity: Ecuador, Cuba (mostly in extractive industries), Peru, and Venezuela.

Unfortunately, precise and current statistics are not available for careful comparisons. But some rough picture

of Latin America begins to develop when one looks at the extent of manufacturing enterprise, the economically active population, and extent of the industrial labor force. (See Tables I, J, and K.)

There seems to be a multitude of small manufacturers. Many of the plants included in the totals have only five to ten employees. Fourteen reporting countries indicate a total of 138,000 manufacturing establishments, but this is not a firm comparative statistic since the years of record range from 1945 to 1954.

The same number, but not the same countries, place the total economically active population at 41 million and identify about 11 per cent as wage-earning and salaried employees in manufacturing activities, as against 23 per cent of the 121 million economically employed in Europe. The low industrial pattern is repeated in the Africa-Asia-Oceania bloc where only 6 per cent of the 167 million work force is in industry.



NECCHI SEWING MACHINE PLANT, PAVIA, ITALY

The availability of skilled and semi-skilled labor will pose problems in areas outside of Europe. But we need only look at the way this problem was licked during World War II. Working in many theatres of war with a hard core of technical personnel imported from the United States and assisted by interpreters, every operation and function was broken down to its simplest elements, which could then be quickly grasped by untrained native workmen. Results were spectacular. At the worst, management will have to develop training methods geared to the habits and mechanical comprehension of population groups within countries or even within areas within countries. At the best, indoctrination will not be impeded by retraining to American methods, a problem more prevalent in European operations.

BASIC INVESTMENT FACTORS: *The Basic Economy—The Resources—The Investment Laws and Restrictions*

L. Basic character of economy. A—Agricultural; I—Industrial; M—Mining. Listed in order of importance in each country.
M. Degree of endowment in natural resources.
N. Is foreign investment law in effect?
O. Are there existing restrictions on *types* of foreign branch industries?

Code Number	L	M	N	O
1. CANADA	I-A-M	High	No	None
2. PUERTO RICO	A-I	Low	Yes	Qualified
LATIN AMERICA				
3. Argentina	A-I	Moderate	Yes	Qualified*
4. Bolivia	A-M	Moderate	Yes	Limited*
5. Brazil	A-I-M	High	No	Limited*
6. Chile	A-I-M	High	Yes	Limited*
7. Colombia	A-M-I	High	No	Limited*
8. Costa Rica	A	Low	No	Limited*
9. Cuba	A	Moderate	No	None
10. Dominican Republic	A	Low	No	Limited*
11. Ecuador	A-I	Moderate	No	Limited*
12. El Salvador	A	Low	No	None
13. Guatemala	A	Moderate	No	None
14. Haiti	A	Low	No	Limited*
15. Honduras	A	Low	No	None
16. Mexico	A-I-M	High	Yes	Qualified*
17. Nicaragua	A	Moderate	No	None
18. Panama	A	Low	Yes	Qualified*
19. Paraguay	A	Low	No	None
20. Peru	A-I-M	High	No	None
21. Uruguay	A-I	Low	No	None
22. Venezuela	A-I-M	High	Yes	None
EUROPE				
23. Austria	A-I	Moderate	No	None
24. Belgium	I-A-M	Moderate	No	None
25. Denmark	I-A	Moderate	No	Limited*
26. Finland	A-I	—	No	—
27. France	A-I-M	High	Yes	None
28. Western Germany	I-A-M	Moderate	Yes	None
29. Italy	A-I-M	Moderate	Yes	None
30. Netherlands	I-A	Low	Yes	Qualified*
31. Norway	A-I	Moderate	Yes	None
32. Portugal	A-I	Moderate	Yes	Qualified*
33. Spain	A-I	Moderate	Yes	Qualified*
34. Sweden	I-A	Moderate	Yes	Qualified*
35. Switzerland	I-A	Low	No	None
36. United Kingdom	I-A-M	Moderate	No	None
AFRICA—ASIA—OCEANIA				
37. Egypt	A	Moderate	Yes	Qualified*
38. Liberia	A-M	High	No	None
39. Union of So. Africa	I-M-A	High	No	None
40. Australia	I-A	High	No	None
41. India	A-I-M	High	Yes	Extensive
42. Indonesia	A-I-M	High	Yes	Limited*
43. Israel	A-I	Low	Yes	None
44. Japan	A-I-M	Low	Yes	Qualified*
45. New Zealand	I-A	High	No	None
46. Philippines	A-I	High	Prep.*	None

Reference Sources: Page 110   *See Footnotes: Page 113.

Existing labor legislation and control of foreign personnel (Tables Y and Z) for the most part provide sufficient latitude to permit both continuity and breadth in training and operational programs. Especially in Latin America, Africa, Asia, and Oceania, the dispersal of industrial activity into many small units might also be a blessing in disguise. Such small units may be more susceptible to consolidation or limited expansion than medium-sized industries, which resist absorption or amalgamation by intensified competition and other means.

Competition for Capital

In the immediate months and years ahead foreign capital investment may have to compete fiercely with our domestic capital needs. The reservoir of capital, which is fed appreciably by channels of credit, is not inexhaustible; and the demands, both domestic and foreign, seem to be endless. Compromises will be sought and found, and these may spur new approaches. One possibility is moving used capital equipment abroad in place of cash or credit. Fast-moving technological advances hasten obsolescence; to junk equipment three, five, or even ten years old is a by-product of progress. But this old equipment can be put to use in new fields. Consider that the slower pace of industrial demands in Latin American, African, and Asian markets may be ideally satisfied by these still useful industrial tools as capital equity.

The equipment, of course, may be sold; better still it can serve as the nucleus for a branch investment, thereby preserving markets while

BASIC INVESTMENT FACTORS: *The Investment Regulations*

P. Is expropriation allowable under foreign investment law?
Q. Does foreign investment law provide for maximum or minimum capital brackets?
R. Are branches of foreign companies required to operate under specific type or form of corporate or partnership structure?
S. Does law require compulsory development and maintenance by foreign companies of capital reserves?
T. What is extent of allowable withdrawal of net earnings or dividends?

Code Number	P	Q	R	S	T
1. CANADA	Inherent	No	No	No	Unrestricted
2. PUERTO RICO	Inherent	No	No	No	Unrestricted
LATIN AMERICA					
3. Argentina	Yes	No	No	No	Annually 8% of registered capital 2 years after registration
4. Bolivia	Yes	No	No	No	Annually 15% of registered capital
5. Brazil	Yes	No	No	No	At discretion of exchange control authorities
6. Chile	Yes	No	No	Yes 5%	Income repatriable 10–20 years without prior authorization
7. Colombia	Yes	No	No	Yes 10%*	Unrestricted
8. Costa Rica	Yes	No	No	No	Unrestricted
9. Cuba	Yes	No	No	No	Unrestricted
10. Dominican Republic	Yes	No	No	No	Unrestricted
11. Ecuador	Yes	No	No	No	Unrestricted
12. El Salvador	Yes	No	No	No	Unrestricted
13. Guatemala	Yes	No	No	No	Unrestricted
14. Haiti	Yes	No	No	No	Unrestricted
15. Honduras	Yes	No	No	No	Unrestricted
16. Mexico	Yes	Yes	Yes	No	Unrestricted
17. Nicaragua	Yes	Yes	No	No	At discretion of exchange control authority
18. Panama	Yes	No	No	No	Unrestricted
19. Paraguay	Yes	No	No	No	At discretion of exchange controls board
20. Peru	Yes	No	No	No	Unrestricted
21. Uruguay	Yes	No	No	No	Unrestricted
22. Venezuela	Yes	No	No	No	Unrestricted
EUROPE					
23. Austria	Inherent	No	No	No	By agreement with Austrian National Bank
24. Belgium	Inherent	No	No	No	Unrestricted
25. Denmark	Inherent	No	No	Yes*	Unrestricted
26. Finland	Inherent	No	No	No	Not available
27. France	Inherent	Yes*	No	No	Slight restrictions
28. Western Germany	Inherent	Yes*	No	No	Slight exchange restrictions
29. Italy	Inherent	No	No	No	No restriction for productive enterprises*
30. Netherlands	Inherent	No	No	No	Various regulations generally subject to exchange license
31. Norway	Inherent	No	No	Yes*	Unrestricted
32. Portugal	Inherent	No	No	No	Unrestricted
33. Spain	Yes	Yes*	No	No	Severe restrictions
34. Sweden	Yes	No	Yes*	Yes*	Recent rate averaging 7%
35. Switzerland	Inherent	No	No	No	Unrestricted
36. United Kingdom	Inherent	No	No	No	Nominal permission required of exchange control authority
AFRICA—ASIA—OCEANIA					
37. Egypt	Yes	Yes*	No	Yes*	Unrestricted
38. Liberia	Inherent	No	No	No	Unrestricted
39. Union of So. Africa	Inherent	No	No	No	Unrestricted
40. Australia	No	No	Yes*	No	Slight restrictions and repatriation at discretion of government
41. India	Yes	Yes*	No	No	Severe restrictions by Exchange Bank of India
42. Indonesia	Discretionary*	Yes*	Yes*	Yes*	At discretion of Foreign Investment Council
43. Israel	Inherent	No	No	No	Up to 10% of the investment annually out of accumulated profits
44. Japan	Inherent	No	No	No	At discretion of Ministry of Finance up to 50% has been granted
45. New Zealand	Inherent	No	No	No	Not available
46. Philippines	Inherent	No	No	No	Range is 25–100% based on 3-part formula*

Reference Sources: Page 113 — *See Footnotes: Page 110

conserving capital. And this also opens up job possibilities abroad, of both permanent and temporary character for technical personnel. Recently one brewery in Pennsylvania found that newly installed equipment had stepped up output to a point where one of its three plants had to be shut down. It sold and shipped the entire plant to a prominent brewer in Monterrey, Mexico.

So long as this activity is sensibly pursued it will contribute to our growth and world growth, along ethical and profitable lines.

Ground Rules for Foreign Investments

Many of the countries reviewed in this study have in the recent past enacted legislation popularly defined as foreign investment laws (Table N). These establish the ground rules for behavior of foreign companies interested in investing capital. The rules touch almost every aspect of the daily life of a foreign branch, literally from the cradle (organization) to the grave (expropriation or discontinuance). In establishing the precise pattern of employment, taxes, capital, and dividend withdrawals, the highlights of which are reviewed on pages 107-109, the individual foreign governments have generally been motivated by a desire to encourage investment. But if business competes, so does government. It is not strange to find new inducements offered progressively by one country after another in the race for the dollar, the pound, the deutschemark—in fact for any and every foreign capital contribution.

The pace accelerates as the investing countries vie with each other for new and expanding areas in which they can put their capital to work for products and profits. This reciprocal movement is in full swing; its terminal point is lost sight of in the scramble for markets.

Economic Penetration Is a Worry

Of course, some governments worry about the degree of penetration, partly from economic and partly from political considerations. This will account for the nationalism, discriminatory treatment, excessive tax or exchange revisions that sometimes appear on the deficit side of the ledger. And some countries may build up resentment at what they consider the debarring of their nationals from ownership of industries too heavily controlled by foreign interests. Consider, for example, the recent outburst of Canadian Government officials at what they described as the overwhelming ownership (45 per cent) of Canadian business by U.S. capital.

Completed in 1954, a survey undertaken by the Department of Commerce, showed that almost one-third of the U.S. investing companies (89 sampled) had withdrawn from one or more markets at some time in their investment history. But resilience is the key word; as plants close down in one area, new factories open up in others. This is evidenced by the fact that in the last five years investments abroad of the 442 companies under constant survey have almost doubled in dollar volume. Each profitable plant inspires another new venture.

But what about competitors? The

challenge to invest abroad in order to hold or acquire markets is ever-present; and as one competitor comes in, another follows, and so on, *ad infinitum*. These are the hard economics. While situations such as that in the Middle East today may dampen enthusiasm for investments abroad, this effect is transitory. In the long run, the need to keep the industrial hoppers full prods companies to seek constantly new sources of supply; the pressure to compete overrides the most formidable barriers.

Fragmentary Laws May Control Investments

Not all countries have definite investment laws, as will be seen in Table K on page 105. But this does not mean that investments are banned or that foreign companies are not regulated. Many of these countries have fragmentary laws that, in combination, produce a control of foreign investments closely paralleling or even exceeding the sharply drawn lines of the group with specific investment laws.

The pattern of their ground rules may not be as clearly discernible but the ultimate effect is the same; and the ultimate need for investment may be as great. This "fringe" group should, therefore, be given equal consideration.

"Fringe" countries include nations like the United Kingdom, Belgium, Cuba, and Venezuela, which figure prominently in the investment picture today.

Economic Colonialism and Expropriation Go Hand in Hand

Restrictions on types of industries, reviewed in Table O, seem to be a major concern in the Latin American area. Petroleum is jealously guarded; so is the production of matches (a European practice) and other diverse products from alcohol to tobacco. And there is some sensitivity toward foreign ownership of transportation and communication facilities in Latin America. As a rule of thumb, practically all extractive industries are likely to be controlled tightly by the several governments. And restrictions in other areas of industrial activity are appearing.

In Europe restrictions seem to be placed more often on the service functions, such as banking, trans-

BASIC INVESTMENT FACTORS: *The Investment Regulations (continued)*

U. What is extent of allowable withdrawal of capital in period and/or percentage?

Code Number	U
1. CANADA	Unrestricted
2. PUERTO RICO	Unrestricted
LATIN AMERICA	
3. Argentina	Annually 10–20% of original capital after 10 years from registration
4. Bolivia	30% of registered capital annually
5. Brazil	By annual negotiation with exchange control authorities
6. Chile	Annually 20% of original capital 5 years from registration
7. Colombia	Unrestricted
8. Costa Rica	Unrestricted
9. Cuba	Unrestricted
10. Dominican Republic	Unrestricted
11. Ecuador	Annually 12% of registered capital
12. El Salvador	Unrestricted
13. Guatemala	Unrestricted
14. Haiti	Unrestricted
15. Honduras	Unrestricted
16. Mexico	Unrestricted
17. Nicaragua	Annually 10% of registered capital
18. Panama	Unrestricted
19. Paraguay	At discretion of exchange control authorities
20. Peru	Unrestricted
21. Uruguay	Unrestricted
22. Venezuela	Unrestricted
EUROPE	
23. Austria	By agreement with Austrian National Bank
24. Belgium	Unrestricted
25. Denmark	Unrestricted
26. Finland	Not available
27. France	Slight restrictions
28. Western Germany	Slight exchange control restrictions
29. Italy	No restriction for productive enterprises*
30. Netherlands	Unrestricted if capital exceeds $1,350,000 in 3 years
31. Norway	Unrestricted
32. Portugal	Unrestricted
33. Spain	Severe restrictions
34. Sweden	Severe restrictions imposed by exchange control office
35. Switzerland	Unrestricted
36. United Kingdom	Unrestricted
AFRICA—ASIA—OCEANIA	
37. Egypt	Annually 20% of registered capital after 5 years operation
38. Liberia	Unrestricted
39. Union of So. Africa	Unrestricted
40. Australia	Slight restrictions and repatriation at discretion of government
41. India	Severe restrictions by Reserve Bank of India
42. Indonesia	At discretion of Foreign Investment Council
43. Israel	Annually on 10% of investment
44. Japan	Annually 20% of investment after 2 years
45. New Zealand	Not available
46. Philippines	At discretion of Monetary Board of Central Bank

Reference Sources: Page 113 *See Footnotes: **Page 110.**

BASIC INVESTMENT FACTORS: *The Taxes—The Labor Regulations*

V. What, if any, is period of tax exemption for new foreign companies?
W. What is minimum-maximum business income tax?
X. Is country party to the Double Tax Convention and Prevention of Fiscal Evasion?
Y. What is degree of existing labor legislation?
Z. What is allowable extent of foreign personnel?

Code Number	V	W	X	Y	Z
1.	None	18% on first $20,000; 45% on excess over that amount	Yes	Extensive	Lightly restricted*
2.	10 years	No federal income tax under certain conditions*	—	Extensive	100%
3.	None	30%	Negotiating	Extensive	100% except in telecommunications*
4.	None	25%	—	Moderate	15%
5.	None	10% ($1540) 15% (over $7700)	Negotiating	Moderate	33⅓%
6.	5–10 years*	15.6%–39%+16.9% on profits foreign companies	—	Extensive	15%
7.	1–10 years plus*	1–32% over $880,000	Negotiating	Extensive	100% if managerial*
8.	No direct exemptions*	1–30% on or over $75,000	—	Moderate	100% if managerial*
9.	6–10 years*	20–35% on or over $1 million	Negotiating	Extensive	50%
10.	Subject to Presidential grant of exemption	10% plus 3% on undistributed profits	—	Moderate	30%
11.	None	16% on dividends paid outside Ecuador 10% on dividends paid in Ecuador	—	Slight	20%

V	W	X	Y	Z
12. 5 years	2½–20%	—	Moderate	20%
13. 10 years with partial and variable exemption	5–43% over $300,000	—	Extensive	10%*
14. 50% for first year; 20% for each succeeding 4 years until 1960	5–30% over $40,000	—	Moderate	5%
15. None	4–15% over $500,000	—	Moderate	Regulated by each concession
16. 5 to 10 years*	3.8–33% over $83,000	Negotiating	Extensive	100% if managerial 10% otherwise
17. Qualified exemption may be obtained from government	4–18% over $140,000	—	Extensive	100% if managerial 25% otherwise
18. Period of exemption may be obtained by prior contract with government	2½–34% over $1 million	—	Extensive	25%
19. Indeterminate exemption to new industries processing national raw materials.	5–19% over $580	Negotiating	Extensive	10%
20. None	7–20% over $5000	—	Moderate	100% if managerial 20% otherwise
21. Indeterminate exemption to new and expanding industries*	20% on profits of between 12–15% on capital base $125,000 or more; 30% on profits of over 60% on capital base $125,000 or more*	Negotiating	Moderate	10–40% depending upon type of enterprise
22. None	2½–26% over $8,480,000	Negotiating	Extensive	100% if technical 25% otherwise
23. None	24% ($1923) to 44% (over $19,230.)*	Negotiating	Extensive	Alien work permits required
24. 2–3 years; maximum 8 years*	40% on net profits*	Yes	Extensive	Alien work permits required
25. None	5–6% of income on paid up capital*	Yes	Extensive	Alien work permits required
26. None	38% plus 8–14% communal tax*	Yes	Extensive	—
27. None	38% on net profits/18% on distributed profits	Yes	Extensive	Alien work cards required
28. None	45% plus 15% trade tax on gross income $146,332*	Yes	Extensive	Employer must obtain alien-work permit
29. None	19.9–28% on industry profits	Negotiating	Extensive	None
30. None	40% ($10,520) to 43% ($13,150)*	Yes	Extensive	Employer must obtain alien-work permit
31. None	30% (on all income) plus 10% (undistributed profits)*	Yes	Extensive	Alien work permits required
32. None	3.5% Industrial tax (assessable capital) 14% surtax on normal tax*		Moderate	Alien work permits required
33. None	16% on profits not exceeding 40% of capital; 37% on profits not exceeding 15% of capital*		Extensive	30%/10% Alien work permits generally required*
34. None	52%-Joint stock companies; Corporations pay 12% total tax plus 15–32% on profits	Yes	Extensive	Alien work permits required
35. None	3% of income when yield is 4% of invested capital to 12% on 16% of invested capital*	Yes	Extensive	Alien work permit required
36. None	42½% (total taxable income)*	Yes	Extensive	Alien work permit required
37. 7 years*	17% on profits*		Moderate	25% "employees"; 10% "laborers"
38. None	5% (net income to $5000) to 25% (over $50,000)		Moderate	Alien work permit required
39. None	25% normal tax to 50%-undistributed profits tax is added subject to plowback*	Yes	Extensive	100%
40. None	35% (to $11,200) to 40% (over $11,200)	Yes	Extensive	100%; except those in professions
41. 5 years*	25% per Rupee plus 5% surcharge subject to 9.38% rebate on undistributed profits*	Negotiating	Extensive	100%; but agreement required*
42. None	40% (to $43,850) to 52½% (over $219,250)		Moderate	Permissive*
43. 5 years*	53¾% with 25% set-off from dividends distributed, special refunds for U.S. Companies*	Negotiating	Extensive	100%
44. None	12% plus 35% (to $1385) to 40% (over $1385)	Yes	Extensive	100%
45. None	12½%	Yes	Extensive	100%
46. Until 1958; thereafter partial	20% (to $50,000) to 28% (over $50,000)	Negotiating	Extensive	Slight Restrictions*

Reference Sources: Page 113

*See Footnotes: Page 110

portation, communication, and there is less emphasis on purely extractive and industrial activities.

The Africa-Asia-Oceania bloc is in a state of flux. There seems to be a considerable sensitivity about "economic colonialism." Gravitation is toward public ownership, but time will tell whether the internal and external influences opposed to this drift toward socialization will retard or possibly reverse the movement. As of now, one has to play these markets by ear.

Expropriation is, of course, the ever-present bugaboo (Table P). Despite this threat foreign investors have piled up new records in venturing risk capital everywhere, under the stimulus of higher profit expectancies. Conditioned by their own laws, foreign investors recognize the inherent right of a sovereignty to seize private property. The rub comes when the question of just compensation arises.

Capital Investments Unlimited

Prevailing in most parts of the world is an attitude of indifference toward a floor or ceiling on capital investments (Table Q). But the recent flare-up in Canada on this factor gives food for thought. Isolated cases, popping up here and there, of complaints against excessive penetration of foreign capital make this an important point to watch in future operations and negotiations.

Free Choice in Corporate Forms

There is considerable freedom in the choice of the type of business structure (Table O), in almost all the markets reviewed. Because of custom, the tendency on the part of American companies is to set up corporate forms closely resembling American counterparts. But some thought should be given to the possible advantages of adopting a foreign business structure, since this may be more advantageous from a legal, functional, or operational viewpoint. As pointed out recently by Russell Baker, of Baker McKenzie & Hightower, international legal and tax counsel of Chicago, the Sociedad en Comandita (the silent partnership) offers attractive possibilities for a simpler mode of management.

Hidden Barbs in Reserves

Almost invariably legal reserves, as such, are seldom required in most

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FOOTNOTES TO TABLES ON BASIC FOREIGN INVESTMENT FACTORS

N 46—In preparation.

O 3—Industries primarily involved in foreign trade and public service reserved for State Enterprise. **O 4**—Petroleum, matches, tin are government monopolies. **O 5**—Coastal shipping, periodicals, radio stations reserved to nationals. Petroleum is government monopoly. **O 6**—Coastal shipping, radio stations reserved to nationals. Nitrate, petroleum, iodine are government monopolies. **O 7**—Coastal shipping reserved to nationals. **O 8**—Coal and petroleum are government monopolies. **O 10**—Salt, gypsum, peanut oil are government monopolies. **O 11**—Alcohol, salt, tobacco, matches are government monopolies. **O 14**—Tobacco, sugar, bananas are government monopolies. Foreign companies may engage in commerce only in open ports. **O 16**—Manufacturing, agricultural, stock raising, forestry, real estate enterprises require permission. Petroleum is government monopoly. **O 18**—Retail trade is restricted to nationals. **O 25**—Government controls railways, aviation, communications, distilleries, sugar refineries. **O 30**—1954 law permits government to close or prohibit certain industries—but law not tightly enforced. **O 32**—Government must approve category. **O 33**—Must be approved by National Institute of Industries. **O 34**—None, except for nationalized industries or government monopolies. **O 37**—Must be approved by Joint Committee of Ministries. **O 42**—Foreign capital excluded from utilities, transportation, defense; limited to 49% of basic industries. **O 44**—Subject to approval of Ministry of Finance.

P 42—Guaranty against expropriation for 20 years; thereafter may be converted into National enterprise.

Q 27—If investment 50 million francs or more, application must be submitted to Committee on Investments (Exchange Control Office; Ministry of Industry & Commerce; Ministry of Finance; Ministry of Foreign Affairs). **Q 28**—Limited to $119 thousand per year per enterprise; if in excess, application must be submitted to the State Economic Ministry (not Federal but German State in which branch is to be located). **Q 33**—If established as Limited Liability Company maximum capital is 5 million pesetas; limited to 50 members per company. **Q 37**—Joint stock company or limited partnership requires minimum capital of $57,400. **Q 41**—Amount of capital is fixed by Ministry of Industry & Commerce. **Q 42**—Amount of capital is fixed by the Foreign Investment Council which consists of representatives of various Ministries.

R 34—Under 1956 law a foreign-owned company must incorporate as prescribed Swedish entity. **R 40**—Incorporation required as "Foreign" company. **R 42**—At discretion of Foreign Investment Council.

S 7—Represents security-deposit on future taxable dividends sent abroad. **S 25**—Subsidiary of foreign corporation must limit dividends to 6% of capital until 10% of its capital is accumulated; thereafter 5% of net profits must be transferred annually to a reserve, up to limit of 25% of share capital. **S 31**—10% of annual net profits must be held in reserve. **S 34**—10% of annual net profits must be held in legal reserve until 20% of the capital is reached. **S 37**—5% of net profits of joint stock companies must be held in reserve until 20% of the capital is reached. **S 42**—At discretion of Foreign Investment Council.

T 27—"Productive" enterprise defined as land reclamation, plant construction, yards, generators, transmission lines, wells and tunnels, vessels, aircraft, hotels, road construction. On investment not qualifying as "productive" enterprise, repatriation of capital and dividends permitted up to 8% per annum after 2 years. **T 46**—Degree of dividend repatriation based on 3-part formula but substantially influenced by contribution to Philippine economic development.

U 27—Same as **T 27.**

V 6—Certain industries in and outside of Santiago may obtain exemption after Government approval. **V 7**—Certain specified industries exempt from "patrimony taxes." These are based upon working capital—i.e., amount of quick assets in excess of quick liabilities. Processors of raw materials, also public utilities exempt during organizational period. Iron and steel producers exempt 10 years from initial date of actual production. **V 8**—Special exemptions on customs duties and export and import taxes. **V 9**—Foreign branches may elect to pay 3.6% tax on gross receipts instead of regular corporate taxes. Partial exemption for additional 10 years. Tax on dividends exempt 10 years. **V 16**—10 year exemption to basic industries; 7 year exemption to semi-basic industries; 5 years to secondary industries. If exemption needed to develop export of finished or semi-finished products, exemption may last for 10 years subject to yearly confirmation. Exemption may not exceed 40% of normal tax. **V 21**—Exempt profits below 12% of invested capital. **V 24**—30% on new capital invested from *7/1/54-56* exempt if investment is minimal 250 thousand francs; if less than 30% during first 3 years, difference up to 30% is deducted from profits in any one of 5 years following initial 3 year period. **V 37**—For Joint Stock Companies and Limited Partnership full exemption on new companies; existing companies are granted exemption on ½ of undistributed profits. **V 41**—6% of profits exempt during first 5 years. **V 43**—In first 5 years, maximum tax deduction limited to twice the normal rate for investment in buildings and improvements.

W 2—No Federal Income Tax on income derived within P.R. by U.S. mainland corporations, if 80% of income from sources within P.R, and if 50% or more from active conduct of trade or business. P.R. corporations and partnerships exempt from Federal Income Tax. **W 23**—Plus 15% on trade proceeds; 20% on wages; corporation tax ½%. **W 24**—Same rate applies to national and foreign companies. **W 25**—Plus 60% on income over 100% of paid-in capital. **W 26**—Communal tax applies on amounts over $2627; church tax 2%. **W 27**—Applies to only 75% of dividends by U.S. companies. Capital gains tax of 38% reduced to 8% for companies over 5 years old. **W 28**—Note exception that U.S. companies are not taxed under the U.S. Convention unless they are "permanent" establishments. **W 30**—Plus 4% tax on wages and salaries. **W 31**—Plus municipal tax of 16.8%. **W 32**—6% complementary tax on income equal to 7.35% of nominal capital. **W 33**—Excess profits tax 40% on 10% of capital up to 80% tax on 60% of capital. **W 35**—20% surtax on net profits over $1155 and in excess of 8% of invested capital. **W 36**—Plus 30% on distributed profits; 3% on undistributed profits. **W 37**—Plus 1.7% to 2½% municipal tax. **W 39**—35% on $11,200 to 40% on over $11,200. **W 41**—Super tax of 29.7% per rupee, subject to 12½% rebate on profits over 25,000 rupees ($5250) and 18¾% on undistributed profits not exceeding 25,000 rupees. ($5250). **W 43**—U.S. companies are refunded excess over U.S. credit allowance.

Z 1—Coastal shipping, commercial aviation, certain types of fishing, radio broadcasting restricted to Canadian personnel. Otherwise none. **Z 3**—Telecommunications limited to 20% if technical and administrative—50% in other divisions. **Z 7**—20% wage-workers; 30% if salaried. **Z 8**—Only 10% other categories and limited to 15% of total payroll by compensation. **Z 13**—May not receive over 15% of total payroll compensation. **Z 33**—Exceptions: alien workers in "National Industries" of "Defense." 25% of technical personnel may be aliens for first 3 years' operation of new enterprise; thereafter only 10%. **Z 41**—Approval necessary to train Indian technical and management personnel. **Z 42**—Number of foreign personnel left to discretion of Foreign Investment Council. **Z 46**—No hiring of foreign common labor permitted. No restriction to hire foreign executive supervisory and technical personnel.

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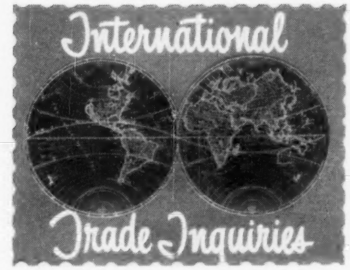

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0031 Fungicidal plugs reported to stop dry rot in walls, beams, and other parts of structures, and also protects timber from woodworm and termites. Descriptive leaflets available. GALLWEY CHEMICAL CO., LTD., 356-368 Evelyn St., Deptford, London, S. E. 8

0032 High-quality oral vaccine tablets for protection against colds and influenza, made under British Government license at registered laboratories in Surrey, England. Descriptive leaflet available. ORALVA DISTRIBUTORS, LTD., Empire House, 175 Piccadilly, London W. 1

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FRANCE

0034 Good quality lubricants of special types for use by the metallurgical industry and in foundries and plants manufacturing non-ferrous metals and semifinished products including coating compounds and lubricants for ingot molds and lubricating oils and greases for rolling mills, wiredrawing and wirepulling mills. ETABLISSEMENTS F. CHRISTOL, 45 Avenue de La Rochelle, Niort, Deux-Sevres

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0040 High-quality aerosoltherapy apparatus and products for use in the disinfection of air, for deodorization, and for sterilization of surgical instruments. SOCIETE DU DOME, 19 rue Courat, Paris

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0045 1,500 pairs monthly of leather gloves for men and women, made of kid, goat, lamb, deer, reindeer, and peccary leather, lined or unlined. Photographs and price list available. ADOLF RUOFF, Neuhausen bei Urach

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0051 Handmade apparel and accessories of leather, silver, and fabric, casual furniture; basketry; cutlery; and tableware. Illustrated catalog and descriptive price list available from the center. HANDICRAFT DISTRIBUTION CENTER, P. O. Box 2806, Beirut

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0062 Martin Espinoza N.
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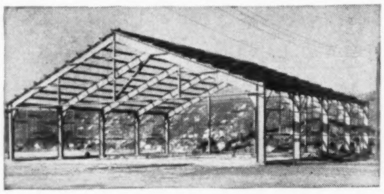

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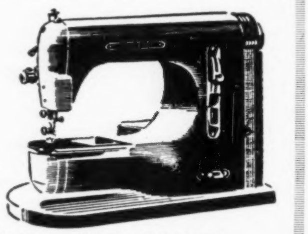

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of the investment areas reviewed. But actually this feature is closely tied in with tax regulations (Tables S, W). This merits serious consideration, because at the inception of a foreign enterprise a portion of the initial capital must be allocated and usually frozen as security for payment of eventual taxes, even though the evil day may be postponed for a number of years comprising the tax "holiday." This is characteristic of Latin American tax administration but is not found as frequently in Europe. In Africa, Asia, and Oceania there is no general trend. Indonesia, for example, contrasts sharply in its severe requirements with a country like South Africa, where regulations are less onerous.

The prevailing attitude towards withdrawal of profits and capital is, in the main, liberal. No restrictions are imposed in 24 of the 44 countries studied (Tables T, U). At first glance, this seems advantageous; but taken in the context of a shifting exchange situation, absence of restriction may precipitate difficulties. This factor calls for continued and close study. A shrinking or deficit international balance of trade in a given country may foreshadow future exchange hardships months before a possible reduction or cut off of exchange transfers.

Tax Contest for Capital

Tax exemption seems to be a popular inducement to attract capital to Latin America (Table V). It is a powerful bargaining weapon and is freely employed in the contest for capital. This is of central importance in the whole tax picture in the Latin American orbit.

In Europe this inducement is almost non-existent; in the Middle and Far East there is some slight tendency to follow the Latin American example. But in the long view the local tax structure should take precedence in evaluating the prospects for profits.

In presenting the range of business taxes reviewed in Table W, it must be emphasized that these do not show a precise tax pattern. They represent only a rough gage of tax liability. Two important qualifications must be considered. First is the presence, almost everywhere, of many forms of taxes which cannot be detailed because of space limitations.

These include surtaxes, excess profits taxes, supertaxes, gross profits taxes, excise taxes, real estate taxes, and a host of property taxes. Obviously there is no real escape from this necessary evil, even in tax havens. Secondly, tax structures do change, sometimes overnight.

The tendency to revise taxes by sudden edict is not uncommon, especially in Latin America. You may wake up to face an almost indigestible lump of new or increased taxes—

REFERENCE SOURCES OF TABLES ON BASIC FOREIGN INVESTMENT FACTORS

UNITED STATES DEPARTMENT OF COMMERCE
August 1956 Issue—Survey of Current Business: U.S. Foreign Investments of 1955 (TABLE A)
BUREAU OF CENSUS
1956 Statistical Abstract of the United States (TABLE I)
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
1956, 1955, 1954 Investment and Economic Guide Series on Foreign Countries. Also Statistical Reports and Economic Reports: World Trade Information Series. (TABLES: L, M, N, O, P, Q, R, S, T, U, V, W, Y, Z)

U. S. GOVERNMENT
1954 THE CAPEHART REPORT on the Study of Latin American countries submitted to the Senate Banking and Currency Committee;' also bulletins and special studies individually released on other foreign countries by this committee. (TABLES: L, M, N, O, P, Q, R, S, T, U)
1956 Export-Import Bank of Washington. Report to the Congress for the period January to June 1956 (TABLES: B, C, D)

UNITED NATIONS PUBLICATIONS
1955 Statistical Yearbook (TABLES: G, J, K, L, M)
1955 Economic Surveys of Europe (TABLES: L, M); Latin America (TABLES: L, M); Asia and the Far East (TABLES: L, M)
1955 Foreign Capital in Latin America (TABLES L, M)
1949 National Income of Seventy Countries (TABLE H)
1955 Direction of International Trade—Annual Data through 1955 (TABLES: E, F)

PAN AMERICAN UNION
1955–1947 Series: Latin American Laws on Matters Affecting Buisness Operations. (TABLES: N, O, P, Q, R, S, T, U, V, W, Y, Z)

PRICE WATERHOUSE & COMPANY
1956 Special Reports from Price Waterhouse Overseas offices on latest developments in foreign taxation (TABLES: N, O, P, Q, R, S, T, U, V, W, Y, Z)

COMMERCE CLEARING HOUSE
1956 Treaty Series (TABLE X)

FALLON PUBLICATIONS
1956–1951 Foreign Tax and Trade Briefs (with supplements) by Walter H. Diamond (TABLES: V, W)

PRENTICE-HALL INC.
1955 Foreign Investment and Taxation by E. R. Barlow and Ira T. Wender

COMMONWEALTH OF PUERTO RICO ECONOMIC DEVELOPMENT ADMINISTRATION
1956 Selected Economic and Social Indices for Puerto Rico (TABLES: E, F, G, H, I, J, K)

CANADIAN GOVERNMENT DOMINION BUREAU OF STATISTICS
1956 Canada Year Book (TABLES: I, J, K)

UNCLASSIFIED
1956 Bulletins and economic reports released by foreign government agencies (TABLES: O, P, Q, R, S, T, U)

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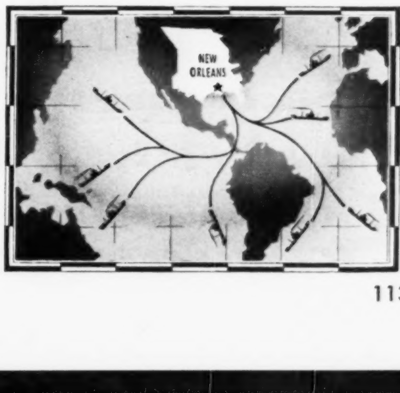

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Cautions

Here we must interpose Caution No. 1. Taxes are a fluid, not a fixed problem in business calculations.

And for Caution No. 2, let us look closer to home. The intention to form a foreign corporation will be closely scrutinized by your own tax agency—the U.S. Internal Revenue Bureau. The intention to open a foreign branch must be formally disclosed through your legal or fiscal agent to the Director of Internal Revenue in the form prescribed in Title 26, U.S. Code Annot. Sec. 3604a (U.S. Internal Revenue Code, 1954).

Caution No. 3 is a shield and a sword. Our Government has entered into a convention with 15 of the 44 countries reviewed to relieve American companies with foreign investments from double taxation, and is negotiating with 13 others to this purpose (Table X). But this agreement carries a significant proviso—*the prevention of fiscal evasion.* As more and more U.S. companies go abroad, the Internal Revenue Bureau progressively increases its vigilance—and properly so. The Treasury Department in its General Counsel's Memorandum No. 25131 has alerted its field offices to test every foreign investment to determine whether it represents a bona fide investment—or a tax evasion in disguise. The line of demarcation is sharply drawn and woe to the one who slips over. Tax havens and profit sanctuaries by their very names promise an economic Elysian Fields—but the grass is not necessarily greener if you get embroiled in tax difficulties here.

The executive decision to invest or not to invest should rest squarely on profit motivation and not tax evasion. —A. O. S.

The data on foreign investment laws and tax regulations appearing in Tables M through Z, inclusive, and supporting footnotes were compiled by Leo. M. Drachsler, Member of the New York and Federal Bars. Mr. Drachsler is vice chairman of the International Trade and Investment Committee, The American Bar Association. He serves on the Committee on International and Comparative Law, The Federal Bar Association of New York, New Jersey and Connecticut. He is also active on the Commercial Arbitration Panel, U.S. Council, The International Chamber of Commerce.

A PROFILE OF THE SALES EXECUTIVE

A survey just completed shows how your sales sparkplug got that way.

SALES executives are fast-moving people. But nearly 2,000 recently took time out to sit for a group portrait, taken by the Sales Executives Club of New York.

A survey of its members who work in the New York metropolitan area—most in national companies—provides many significant findings about the characteristics of a successful sales executive. Here are some of the highlights:

Income: Sales executives reported a wide range of income, which averaged out to $23,600. Here's how their income shaped up in 1955:

INCOME RANGE	PER CENT OF SALES EXECUTIVES
$ 5,000 to $ 9,999	3.7
10,000 to 14,999	21.1
15,000 to 19,999	19.7
20,000 to 24,999	19.5
25,000 to 29,999	9.7
30,000 to 39,999	12.2
40,000 to 49,999	6.0
50,000 or more	8.1

Education: As a group, sales executives are much more blessed with book-learning than the general population. About 40 per cent of the execs are college grads, in contrast to the figure of 6 per cent for the population as a whole. Even more significant in pointing up the growing professionalization of sales management: 14 per cent of the executives hold advanced degrees.

Education and income: No surprises here, for the two tend to move upward together. For example, in the income range from $25,000 to $40,000, 44 per cent graduated from college, 25 per cent more had some college training. A relatively high proportion of all those in the upper brackets had attended college.

Early career: About five out of ten started in selling and stayed there, but many of the executives began in other lines and later switched. Why did they move over to the selling side? The majority—six out of ten—give such reasons as greater opportunity and more interesting work, while only 28 per cent say they made the move solely for more money.

Recommended training: When asked to recommend courses of training (school or college) for salesmen seeking to improve their selling, the executives were virtually unanimous in stressing public speaking. Eight of ten felt the aspiring salesman should take training in psychology, and about as many also called for courses in salesmanship. These same courses were highly rated by the executives as contributing to their own success.

Hobbies: Sales executives, like management men in general, rank golf as their number one hobby. But, surprisingly, gardening is favored almost as much by sales execs.

Retirement plans: Virtually all are covered by Social Security, and in addition 76 per cent can look forward to a company retirement program. But more significant is the fact that seven of ten have made the effort to set up their own retirement plans.

—T. K.

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tine. He may continue to call on a few choice customers because he likes to sell to them and not because he cannot break in another man to do the job. He may go out with the display crew because he has a real flair for display arrangement and feels that only he has the touch that will put the last ounce of pull into a promotion.

While a very small amount of this sort of thing may be desirable for control purposes—and to enable the executive to keep in touch with the field—in most instances the manager is sacrificing his time to marginal duties. Very often he will leave an assistant in the office to handle less interesting but much more important matters.

The Need for Assistants

How can an executive determine whether it is best to delegate to assistants, to specialized staff, or to line subordinates? The issue is clouded by many misconceptions. The major factors involved include the need of the executive for assistance with the responsibilities he has reserved to himself, his desire for a sounding board when he is making up his mind, personal and organizational weaknesses, the amount of time the executive spends away from the job, and the methods used in training and developing managers.

Assistance with Reserved Responsibilities. The primary advantage of using an assistant to help carry out reserved responsibilities is that the assistant provides the executive with a constantly available, fully committed source of help. He does not have to share his assistant with others; he can train him to his own way of doing things; he can be sure of his attention and loyalty.

These potential advantages are also a source of weakness. The executive may delegate to his assistant much of the meaningful and important responsibilities that would normally go to line subordinates. *Because* he has an assistant, he may carry more detail and routine than he should. It is primarily for this reason that some companies arbitrarily eliminate all assistants. They find that if the executive is overloaded, he will be forced to delegate to line subordinates everything but the decisions that only he can make. If he does not learn to do this, his deficiency quickly shows and can be corrected, or he can be transferred.

The executive may delegate to his assistant clerical and minor administrative work that could be handled by his secretary, or technical responsibilities that could be performed more effectively by specialized staff. In one company a division manager maintained two administrative assistants on his staff, one at a salary of $9,000, the other at $11,500. The first spent a large part of his time arranging travel and hotel reservations, handling the details of speech-making and public appearances, opening and routing correspondence, and relaying messages. The other wrote speeches for his boss. Organization analysis showed that most of the work of the first assistant could be handled by the division manager's secretary and the staff traffic department. The work of the other—largely speech-writing—was assigned to the public relations department, which soon demonstrated that it could turn out better speeches than the assistant.

The more technical and specialized the work assigned to the staff assistant, the more possibility there is of overlap and duplication with other positions. The technical work performed by a staff assistant frequently can be more logically grouped with a specialized staff department. A chief executive who wants to initiate market research, or budgetary control, or organization planning on a systematic basis will often hire a man as his personal assistant so that he can "get things started right," with the intention of later setting him up as specialized staff. This alignment gives the new activity unusual emphasis and status, which its early performance often cannot substantiate. Furthermore, it encourages misuse of the assistant relationship because the new man can succeed only to the extent he can demonstrate he is of real value to other staff and line positions; instead of restricting his advice and service to one principal, he must make it available across the board. This difficulty can be overcome by establishing a specialized staff position to begin with, so that the specialist will be equally available to the chief executive and to other elements of the organization.

Need for a Sounding Board. When the chief must make a decision, he may find it helpful to bounce his ideas off an interested and sympathetic auditor. This use undoubtedly has its value in helping the principal to come to a decision. However, lack of specialized knowledge on the part of the assistant may preclude his offering constructive criticism. At the same time, he may be so dominated by his propinquity to his chief that he tends to "yes" rather than to analyze and criticize.

An even greater shortcoming is that to the extent he confides in an assistant, the executive is almost certain to neglect his line subordinates. One advertising manager, for example, complained bitterly because the sales vice president had just called him in and told him that he was hiring a new advertising agency.

"He talked it over with his assistant for more than a month, but he never brought me into the act," the advertising man said. "I knew what was going on, and so did the agencies concerned and everybody in the shop. I had to pretend I was being consulted, but that didn't fool anybody."

When ignored in that fashion, the line subordinate loses interest and motivation. At the same time, the executive is handicapping himself by using his second team instead of his first string in making critical management decisions.

Overcoming Organizational and Personal Weakness. An assistant may be used to overcome the deficiencies of unsound organization or lack of managerial or leadership ability on the part of an executive. It is difficult to argue that a crutch should be taken away if it is really needed. But so long as a crutch is available, there will be little systematic investigation of the underlying weakness or attempt to rectify it.

Minimizing or eliminating the use of assistants will usually help uncover administrative and organizational deficiencies and encourage prompt remedial action.

Covering the Manager's Absence. If the executive is absent from the job a large part of the time, as in travelling, or at committee meetings or in conference, there is a seeming need for an assistant to cover home base for him while he is away. The line assistant is often made use of here because he is, by definition,

almost as capable as his boss. But usually men of the caliber needed have the ability and aggressiveness to play the leading role themselves; as a result, they find the part of the stand-in onerous. If long continued in the position, many line assistants become dissatisfied and frustrated. This perhaps helps explain why many an assistant bears his boss' ulcers.

There are two alternatives that have advantages over the use of assistants in covering the principal's absence. First, the manager's job can be organized so that his personal travel is held to a minimum. Often he travels to supervise—that is, to give personal direction to people in the field. But supervision by exten-

THE AUTHOR • Louis A. Allen is a graduate of Washington State College. He served as a major in the Army Air Forces during World War II and received the Legion of Merit for development of staff programs. Mr. Allen has held management positions with the Aluminum Company of America and Koppers Company, Inc. He recently directed and conducted a three-year study of organization planning in American business, generally regarded as one of the most comprehensive yet undertaken, for the National Industrial Conference Board. Mr. Allen is now manager, organization planning, of the management consulting firm of Booz, Allen & Hamilton, Chicago.

sion is rarely effective; it is much better to install a supervisor on the spot. Managers may travel to inspect operations, for control purposes, and to act as trouble-shooters. Here, again, the executive can delegate most of this responsibility to specialized staff or to line subordinates.

When absence is unavoidable, the manager is better advised to appoint a subordinate manager to take over temporarily for him, rather than to install an assistant. Not only will this cut down salary costs; it will provide an unequalled opportunity for the subordinate manager to shoulder—even if temporarily—the full burden of the top spot. Assumption of real authority serves, as nothing else will, to prove a man under fire and to help him gain experience and breadth for a step up the ladder. If this temporary assignment to the top job is rotated among all the immediate

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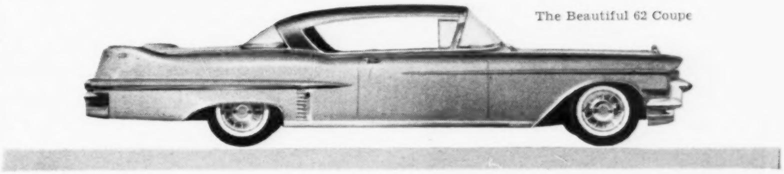

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subordinate managers, each will have opportunity to broaden himself; also each will bring back to his job an appreciation and understanding of the problems confronting his chief.

Training and Development. One of the most frequent arguments for use of assistants is the opportunity it offers for training and development. Put a man in a position where he shares the boss's problems and looks at things from his perspective, the argument runs, and you give him an unequalled opportunity to develop management abilities. While admirable in theory, this assumption rarely proves out in practice. The best way to learn to manage is by managing. The vicarious experience of an assistantship may be helpful. But it rarely provides the pressures and challenges of a *management* position, in which the man with potential is called upon to use his own initiative and judgment to the fullest in developing plans for his function, and in organizing, coordinating, motivating, and controlling the work of those who report to him.

The best way to develop managers is to staff top jobs with competent executives, each of whom has organized his own responsibilities so that he has time to appraise, counsel, and coach his subordinates. Managers learn best by day-to-day exercise of authority under such tutelage. If management is to discharge its responsibility effectively, and at the same time recreate itself, several men should be logical candidates for each top job; and the final selection should be on the basis of demonstrated merit, not that of organization propinquity.

Titles May Be Misleading

Is an assistant always an assistant? In many cases assistant positions are misnamed. This results in confusion and uncertainty about the exact status and function of the units involved.

For example, in one company the industrial relations director had three positions reporting to him: the assistant director, labor relations; the assistant director, personnel administration; and the assistant director, wage and salary administration. These managers rotated as line assistants during the industrial relations director's absence. Other than this, they were true subordinate managers. For a time there was considerable jockeying for position among the three assistant directors and uncertainty on the part of people both inside and outside the department about who was the "assistant director" at any given time. The difficulty was finally eliminated by changing the titles to "manager, labor relations"; "manager, personnel administration"; and "manager, wage and salary administration." The title "assistant director" was assumed only when one of the subordinate managers took over for his chief.

In another case, an organization planning specialist was brought into a large company as assistant to the president. Within a year he was spending more of his time with division managers, assisting them with division organization problems, than with the president. By this time, he had a procedures administrator and a planning administrator reporting to him. On the recommendation of the organization specialist himself, the job was set up as a specialized staff department, which made for a better relationship with both division management and the chief executive.

Steps to Take

Most companies can reduce the number of assistant positions within their organizations with resulting economy and increased efficiency. But there must be provision for careful and sympathetic handling of each individual whose position or status will be affected.

A sound approach requires, first, an appraisal of the abilities and experience of each assistant concerned, and a review of the long-term organization and staffing plan of the company to identify the scheduled openings he is at present qualified for or can be developed to fill. Appropriate training and development programs can then be undertaken. Corollary developmental activities or transfers for inadequate managers and training programs to strengthen subordinate line positions are also indicated.

This is a time-consuming process. From one to five years may be required to effect a significant reduction in the number of assistants. However, once accomplished, it should bring about a general tightening of administrative efficiency, improvement in morale and motivation, and a reduction of the cost of doing business.

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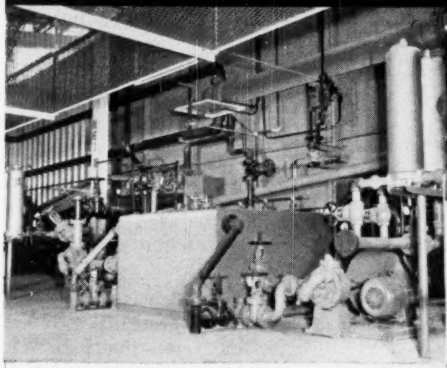

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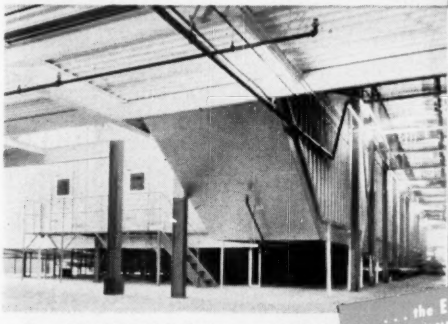
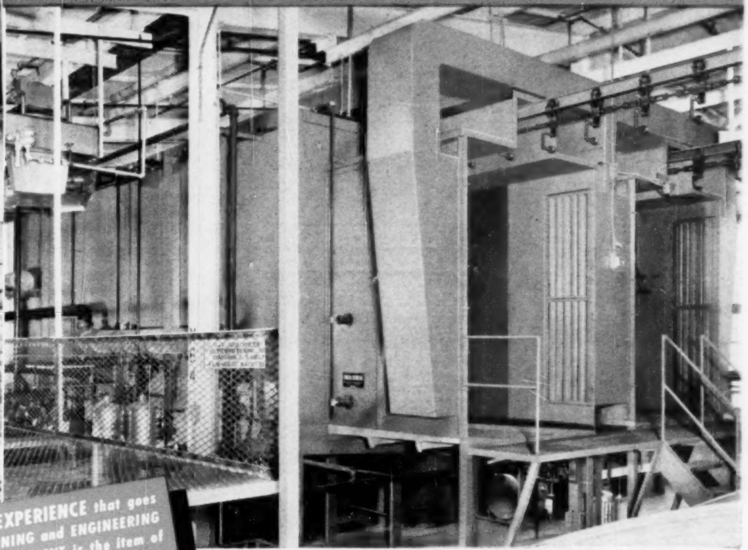


View of Ventilated Drip Enclosure and inclined Tunnel to the Overhead Finish Baking Oven.



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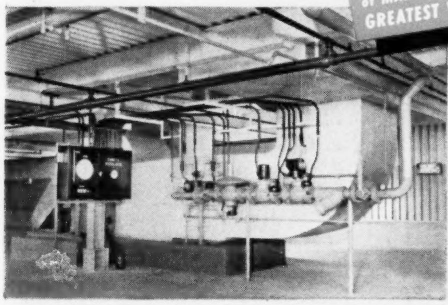
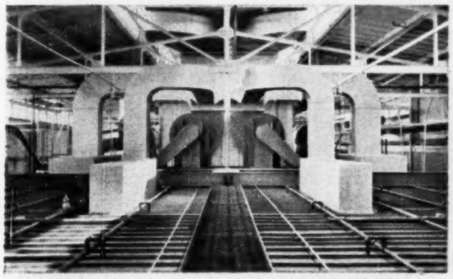


One of the Gas-Fired Heating Units with Automatic Temperature Control Equipment below the Overhead Finish Baking Oven.



General view of Mahon Air Supply and Exhaust Equipment which provide Filtered Air and Ventilation for the entire system.

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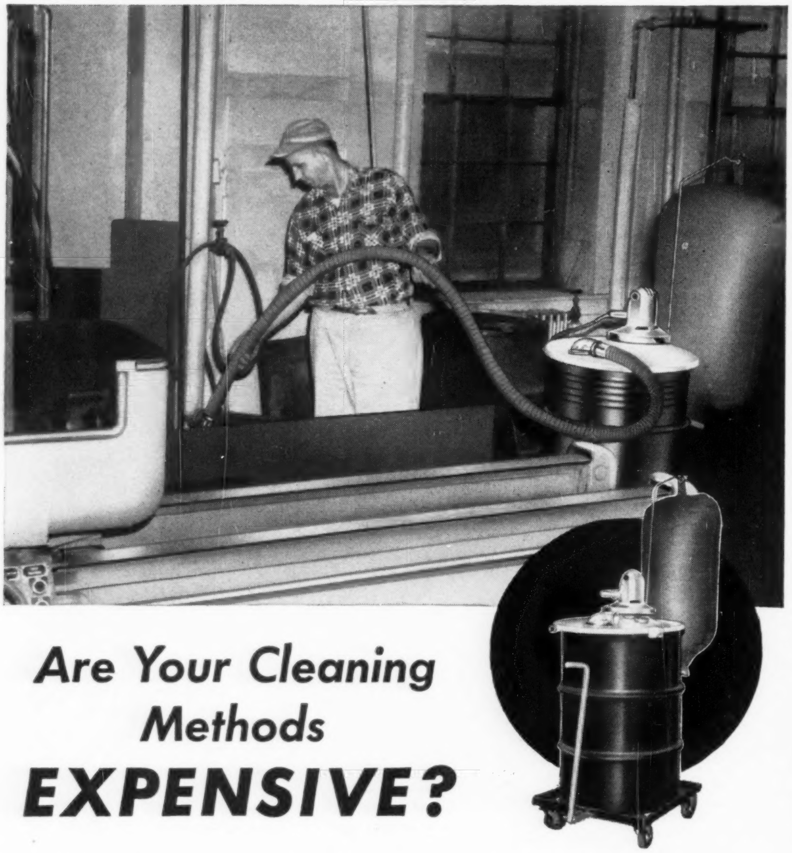

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TRADEMARKS . . . *continued from page 46*

an identification symbol of the particular product; as a proper adjective; and not as the common descriptive name of the product.

"Thus, wherever we refer in writing to a trademark—in correspondence, advertising, promotional pamphlets, publicity releases, product labels, and on the product itself—at least the initial letter, and preferably the entire name—of the trademark should be capitalized. Also, while it is frequently difficult in preparing advertising, promotional literature, and publicity releases to avoid using a trademark as the common or generic name of the product or as a descriptive 'handle' for the product, we must constantly guard against this. A trademark should never be put in jeopardy for the sake of a slightly improved piece of copy."

The Coca-Cola Company distributes a booklet summarizing a color and sound film strip called *The Case for the Upper Case*. It tells the story of the importance of capitalizing our trademark. The text is a conversation between the newspaper office cat Mehitabel and her typist friend Archy, the cockroach, who could jump on only one typewriter key at a time and could not, therefore, type upper case letters. Mehitabel tells Archy that "Coke" without a capital means a kind of fuel.

Minnesota Mining and Manufacturing Company uses a quotation from Shakespeare's *Othello* as its preface to its booklet *Don't Forget the Quotes:*

"Who steals my purse steals trash;
. . . .
But he that filches from me my good name
Robs me of that which not enriches him,
And makes me poor indeed."

Within the Trade

While vigilance, like charity, begins at home, you can't afford to let it stop there. The second area that demands policing attention is within the trade. This means among wholesale distributors and retail outlets, competitors, or any organization selling to the public that may knowingly or unknowingly use your mark.

For companies whose products are widely distributed, this can be a nationwide—even an international—undertaking. Many of them approach

the task by requiring that their regional representatives, and often their dealer outlets, forward to a central office copies of all advertising material, displays, and other promotional matter in which the trademark is found—whether it is properly used or not.

Of course, it is almost impossible to review every use of a trademark outside the company. But it is possible to set up regular clearance procedures for advertising and promotion material, catalogs, service manuals, company publications, and other media in which authorized use of the mark occurs.

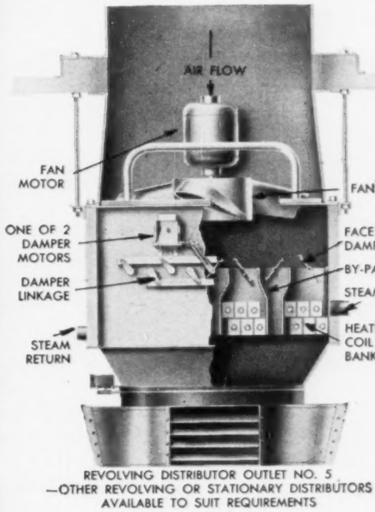
Foreign distribution, of course, greatly increases and complicates the policing problem, and some infringements may be hard to catch. An especially subtle one occurred some years ago, when a company in Japan applied for the registration of the trademark "Ligule" as a confectionery product. Japanese people would pronounce this exactly as they would say "Wrigley."

Obviously, such policing problems require qualified legal counsel and intensive management attention.

THE AUTHOR • Edgar S. Bayol, press counsel of The Coca-Cola Company and, since June of this year, president of the United States Trademark Association, knows trademark practice and protection from three significant angles—the law, the corporation, and the press. From 1926 to 1941 he was a staff member of the *Alexandria* [Virginia] *Gazette*. In 1940 he became general promotion manager of the *Washington Evening Star,* and simultaneously practiced law privately in the District of Columbia from 1939 to 1946. During the next two years he was editorial promotion manager of the *New York World-Telegram* until he joined the Coca-Cola Company in 1948.

In Outside Media

A third important area which management must police to preserve a trademark is communications. This includes all kinds of publications, trade papers, newspapers, magazines, books, radio, and television—in short, all mass media that have occasion to mention a trademark in their text or even show a reproduction of one. And it is surprising how many occasions there are.



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For example, in publications alone there are about 56,000 editorial mentions of Coca-Cola every year, which we review and classify. Among this number, there are many misuses, in most cases unwitting or innocent, which must be protested to prevent repetition and acceptance of misuse by the buying public.

The first step for management is to establish workable and reliable channeling methods by which such gratuitous trademark mentions are forwarded to a central reviewing office wherever they are found. It is practically essential to subscribe to a competent clipping bureau, and many companies also retain radio and television monitoring services, which may be obtained on the same basis as a clipping service. Frequent reminders to regional offices and branches will also bring results.

Any appeal to editors and writers for the proper use of a brand name should be made with tact and a spirit of friendliness. Only four states—Georgia, Illinois, Massachusetts, and New York—have statutes that may enable the trademark owner to seek injunctive relief in a case of trademark abuse. Elsewhere, there is no recourse to a court for help in preventing this abuse.

Here is one letter that we have used effectively:

"The attached clip from your fine paper mentions our product, Coke, but in 'down style.'

"I hate to bother you again about this, but the Lanham Trademark Act makes it necessary for us to notify editors of such use of our trademarks or stand the risk of losing them.

"We greatly appreciate the publicity. But unfortunately, lower casing or other usage which can be construed as generic is actually damaging to us.

"For that reason we will be very grateful if you will remind the members of your staff (or possibly the proofreaders) that both 'Coke' and 'Coca-Cola' are registered trademarks and therefore are entitled to the same typographic treatment as a proper name."

The letter has an even more important internal use. It is essential in trademark preservation to keep accurate records of every policing activity engaged in. This is insurance against the ever-present risk of having to prove in court that you have taken every reasonable measure to preserve the identifying distinctiveness of your mark.

A letter like the one above becomes part of a comprehensive file of all cases of misuse of the mark and of steps taken to combat it. This file should include copies of the questioned material, any replies to letters written, reports of meetings, and the conclusions reached at those meetings. All this builds up to a record that is competent and relevant evidence of "due diligence" on your part. While it is up to a court to decide in any specific trademark litigation what due diligence is, your files may become evidence to support your claim to it.

An eloquent summation of trademarks was made by Justice Oliver Wendell Holmes. Paraphrasing his statement in a famous decision: A trademark is a delicate thing of great value which may be easily destroyed. But to this we may add: With intelligent understanding and unremitting diligence, it can be made to last forever.

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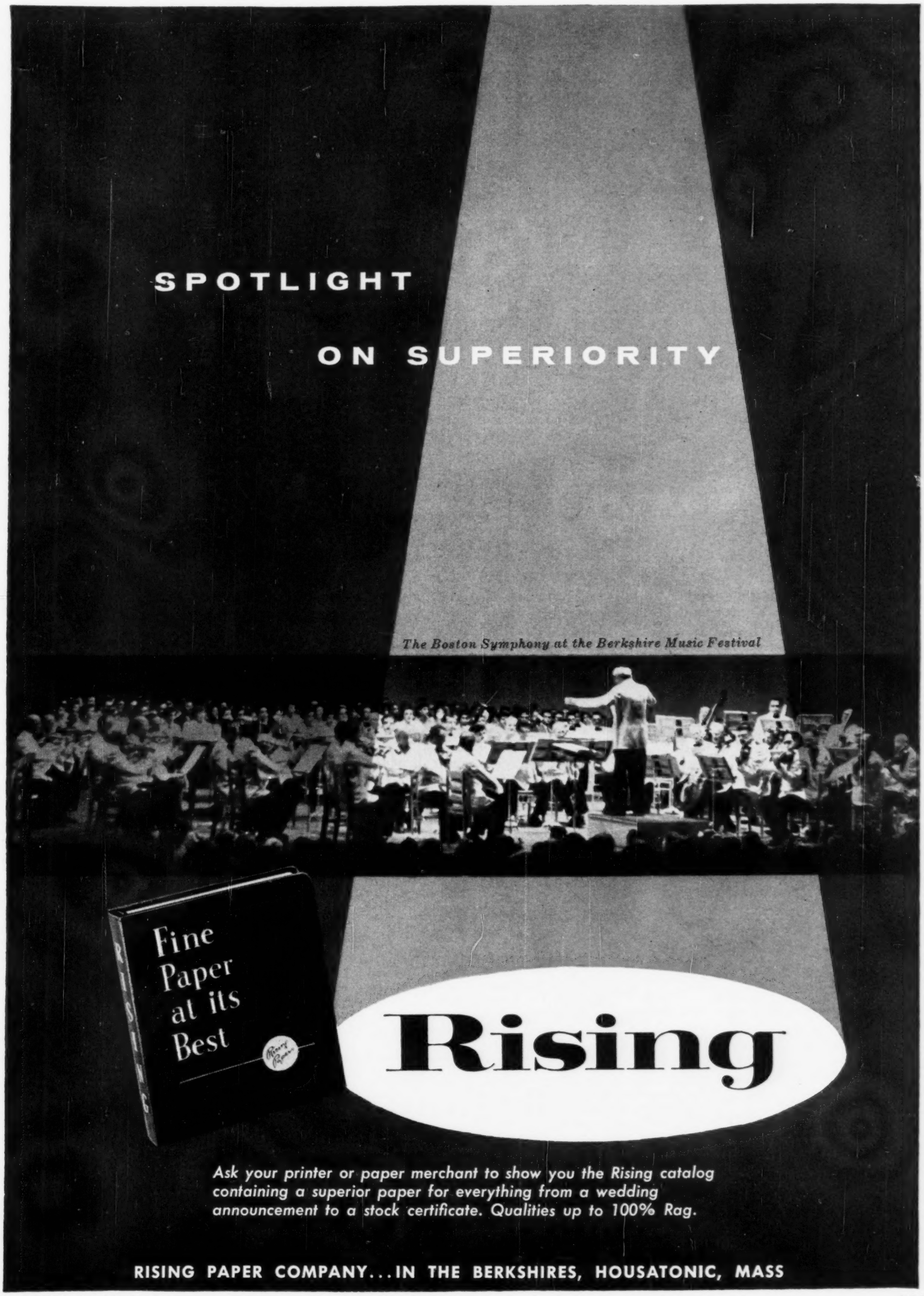
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"—for Mr. Robinson." She looked pointedly at the Treasurer.

The Treasurer takes a phone call

"I'd really prefer *not* to do it myself!" The President was more than usually positive.

"Well, sir—" and the Treasurer *never* called the President 'Sir' except at times like this "—if you'd rather, I'm certainly willing to do it. If you hadn't been *going* to Denver for the Convention—" he raced on past the other's efforts to get a word in "—I would have gone automatically and—"

"Oh, I know that, Charley!" the President broke in. "But look here—" and his smile belied the severity of his tone as he went on, "—if *you* went, you'd collect the amount due, all right, but we'd probably lose the account as a customer—Yes, Miss Trevor?" The President's question was toward his secretary, demurely poised at the half open door.

"I have a call for Mr. Robinson." She looked pointedly at the Treasurer.

"I'll take it here," the Treasurer said.

"Go ahead, Charley." The President dropped into his chair.

The Treasurer picked up the phone. "Yes?" he said.

"Oh, yes, Don!" said the Treasurer.

"Well, well," said the Treasurer, "Denver, eh?" The President looked up at him suspiciously.

"That's fine," said the Treasurer.

"I'll have to let you know," said the Treasurer. "Thanks very much." He hung up.

"Well?" the President inquired.

"*Very* well!" The Treasurer grinned at him.

"Come on, out with it, Charley!" the President urged. "You take a phone call here that breaks into our discussion of the Denver account, and it turns out to be something *about* the account, doesn't it?"

"I confess," the Treasurer said with mock humility. "And I apologize for asking *you* to approach one of our overdue accounts! It seems that we are already represented by attorneys in Denver."

"Then you *did* find a good lawyer?" The President's voice was eager.

"No, I *didn't*," the Treasurer said. "But American Credit Indemnity did—or already had!" He laughed aloud. "That was Don, our Credit Manager," he went on. "He says American Credit Indemnity has collected the Denver account for us! Don placed the account with them about a week ago, and they have a Service Department to take care of things like that.

"The account not only paid up, but—" and he paused to let his final statement sink in "—they want to duplicate their last order. We'll have to discuss terms with them—or do you want to handle that personally while you're in Denver?"

"I think I'll do just that," said the President gravely. Then he and the Treasurer both laughed, to the great mystification of the President's secretary, once again demurely poised at the half open door.

• • •

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American Credit Indemnity

COMPANY OF NEW YORK

REVIEWING STAND
continued from page 5

a small manufacturer may range from \$500,000 to \$5,000,000, and a small retailer from \$25,000 to \$100,000.

The so-called antagonism of "big" and "little" business is another illusion of the political generality. Big business buys from, and sells to, middle business and little business. If there is competition, there is also cooperation and even some coordination of effort for the common interest.

Certainly, some little business enterprises need help, but the help they need is as much in management know-how, sales ingenuity, and marketing techniques as it is in special tax relief and equity capital.

• New products, new methods, new materials are yeast to the expanding GNP figures. Every manufacturer has his eye on "what's new" and Annesta R. Gardner, our Industrial Editor, has a fascinating group of product and methods articles lined up for early 1957: reports on new trends in electronics, the changing picture of materials usage, cost-cutting production methods, and ideas to improve materials handling and storage.

• Among the probable "Special Emphasis" issues for 1957 are ones on Purchasing, Equity Capital Financing, Transportation, and Packaging. The order of dates will be announced later. The special Transportation issue grows out of the "Plant Locations" study of April 1956, an edition which still evokes much comment and correspondence. Preparing for a Special Emphasis issue is a four months' assignment for the editors, with field interviews and roundtable conferences with industry leaders.

• What's the economic outlook for Japan, and how does its low labor cost affect the U.S. market, especially cotton textiles? Dr. Ralph J. Watkins, our Contributing Editor, was invited to Japan as an adviser and observer on the new Japanese highway construction program. He kept one eye on the highway and a "roving eye" on other aspects of the political economy of Japan. He returned recently, and upsets some popular misconceptions in a forthcoming article on our friend and competitor in the Far East. —A.M.S.

GAW . . . *continued from page 56*

Even in the case of automobiles this seems to be true. The Summer vacation period apart, seasonal dips in output in this field are attributable primarily to model changes. There is evidence that shutdowns for this purpose and related joblessness are now of very limited dimensions. During 1954, according to Ford's Ernest R. Breech, the complete changeover undertaken by Ford involved a loss of only 6 per cent in man-days, and not much more than one-fifth of the hourly workers were laid off for as long as two weeks. Although comparative data for Chrysler and General Motors are not at hand, it does not seem unreasonable to think that the other major car-makers made a comparable showing.

In addition, there is ground for believing that the picture in other fields is much better than might be inferred from raw output data. For example, analysis of the 1953 seasonal factors used by the Federal Reserve Board for household electrical appliances indicates that—apart from the vacation months, June and July—there are few cases in which production at seasonal troughs runs under 85 per cent of the monthly average. Indeed, 90 per cent is a relatively low figure. Since peak rates are maintained partly by overtime, employment varies considerably less than output.

Can GAW Help?

The second question is whether a GAW could suddenly iron out the seasonal wrinkles in those target industries that have defied treatment for years. Both general considerations and past experience with GAW raise serious doubts whether much improvement would be forthcoming.

As to general considerations, the first point to be noted is that employers already have strong incentives to smooth their output schedules further. This is notably true in the typical case where seasonal peaks cannot be met exclusively by hiring extra workers but require a substantial amount of overtime. The heavy penalty rates add greatly to the incentives to stabilization provided by experience-rating under Unemployment Compensation; so do the higher overheads, higher outlays for worker recruitment, and other costs that seasonal ups and downs entail.

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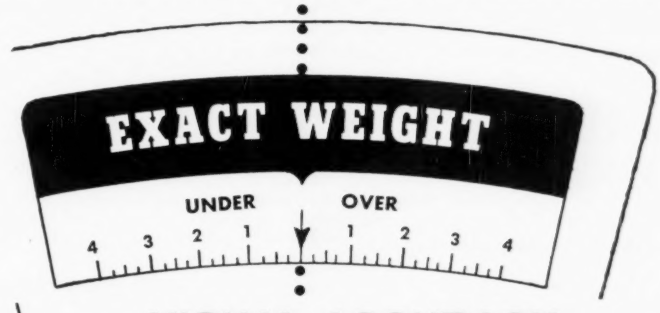

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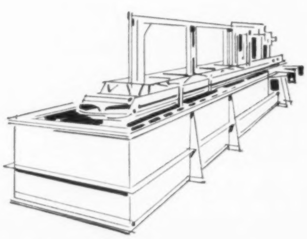

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Largely because of these factors—plus the near-badgering, sugared by technical assistance, of trade associations—employers have already made headway in flattening seasonals, often at heavy gross cost (for example, provision of large bonuses to car distributors for off-season sales in the auto industry).

If and insofar as instability persists, we may suspect that its further reduction would encounter difficulties that the kind of cost incentive provided by GAW would fail to overcome.

A look at some of the obstacles tends to strengthen skepticism here. In many cases, storage and preservation costs would be large. There are also strong competitive factors—notably those having to do with the timing and character of model-changes, which probably cannot be eliminated so long as the antitrust laws frown on collusion in such matters.

To Overcome the Obstacles

These sharply limit the room for levelling of yearly output patterns for existing products. So far as this is true, smoothing would involve addition of product lines with complementary seasonals. In all likelihood that would mean appreciable extra costs unless the new lines resembled existing ones closely enough in pricing and distribution methods, required labor skills, and so on, to enable producers to capitalize on existing managerial and worker knowledge and experience and trade customs. Analysis suggests, however, that qualified candidates are less numerous than might be thought.

As a prime example, take the case of electrical household appliances. A maker of one appliance would probably find that others best met the tests. Yet for most items in this general class seasonal highs and lows appear largely to correspond. To see this, one need only look at the 1953 "pattern" of seasonal factors used by the Federal Reserve Board to adjust raw output data for seasonal variations.

One may find a fair number of cases where significant headway might be made. But for reasons to be noted later, even under conditions of continuous over-all high-level employment, the main impulse toward "rounding-off" product lines in hard goods industries would come from

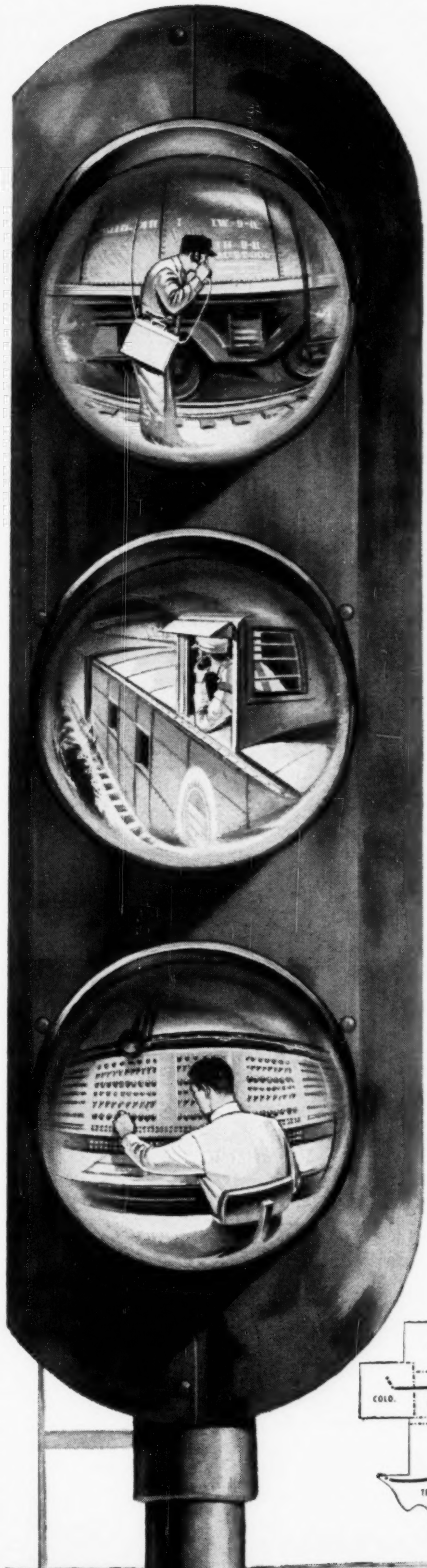
desire to add items that would help to reduce *cyclical* fluctuations in company output. These would affect seasonality, if at all, only in an accidental way, and there would be no assurance that results would be for the better.

Beyond these hurdles, lies problems of labor cooperation. We have seen that the reluctance of building trades unions to accept the changes in craft rules is a major reason for their rejection of GAW. Similarly, seasonal smoothing in the area covered by major CIO hard goods unions might be difficult to manage without the help of adjustments in work-rules (for example, seniority regulations prohibiting or leaving only narrow scope for inter-departmental shifts of employees). To date there is not much evidence that this requirement would be met. At least, the literature suggests that the unions want GAW "too" rather than "instead." In view of the degree to which instability has already been tempered, and considering all the obstacles to further reduction, it seems overly optimistic to expect major results from a stiffening of employers' cost incentives.

However this may be—and we come now to the second point—experience with guarantees to date hardly justifies a favorable view of the device as a remedy for seasonal fluctuations in present target areas. In some instances, there has been a positive relation between stabilization and some sort of guarantee. Such cases, however, represent carefully selected areas in which stabilization usually came first and more often than not both phenomena sprang from employer initiative. Where GAW was the first step, results have been unimpressive. Philip Arnow, co-author of the well-known Bureau of Labor Statistics study of guaranteed wage plans, summarized their history as follows in the February 1954 issue of the *Monthly Labor Review:*

"Thus far there is little or no evidence to support the idea that a financial stake can result in significant stabilization."

How much this has been due to the factors discussed above and how much to others not covered there, more exhaustive analysis would be needed to reveal. But the fact itself appears clear. Bearing in mind that the record shows only minor



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achievement by concerns that in the main (a) had product patterns more amenable to stabilization than those of companies that are major targets of the big CIO unions, (b) were less able, because of smaller size and resources, to bear the consequences of failure to stabilize, and (c) lived in a less hostile environment laborwise, it seems rash to expect major improvement to occur in specific target areas as a result of GAW.

The third question: Would GAW-induced shifts in inter-seasonal use of resources, however large or small, be beneficial? Supporters of guarantees tend to take this for granted. Upon analysis, however, it appears that guarantees will often have one or some combination of several adverse results, and that their *net* influence is as likely as not to be harmful. Of these effects, four merit separate mention.

Four Adverse Results

First, stabilization may well produce undesirable changes in the pattern of employment opportunities. Apparently a large number of persons want only seasonal work, and many of these want work in durable goods industries during peak seasons. To carry reduction in seasonal variations in demand for labor to the point where openings for them are lacking is to frustrate a class of job-seekers with as much "right to work" as many others.

Secondly, stabilization will be no boon if layoffs are averted merely by concocting jobs less productive than those laid-off would fill elsewhere during off-seasons. Cases of this sort seem likely to occur since GAW's cost burden will give employers some incentive to resort to make-work expedients, and since, as will be shown, most seasonally separated persons tend to move to other lines rather than remain idle until recall.

Thirdly, seasonal levelling in some fields will often upset stability in others. Notwithstanding the limited number of experiments with GAW made to date and the relatively favorable circumstances in which most were undertaken, several cases of this sort have arisen. Relative stabilization of some segments of the Cleveland garment trade in the 1920's was at the expense of more severe fluctuations for special contractors. The same sort of thing took place in the wallpaper industry. And the auto-makers' efforts to stabilize operations in the 1930's through shifting the time of model changes aggravated seasonals in the radio industry. It is possible that GAW's effect would sometimes run the other way, automatically leading to further stabilization in other fields. But the writer has seen no example in pro-GAW literature.

Outlook on Eligibility

Analysis indicates that, contrary to the expectation of its proponents, GAW will have net unfavorable effects on the behavior of workers who remain within the labor force more or less continuously. Because of the relative size of benefit payments and the relatively easy conditions of eligibility that would prevail under the set-ups advocated by the unions, it is almost certain that full-scale guarantees would freeze such persons in unemployment during off-seasons.

Here again we are looking at announced ultimate ends, not at the kind of arrangement so far adopted. The unions envisage great relaxation in existing U. C. eligibility rules for workers covered by GAW. The Steelworkers would require unemployed persons merely to register for work, not actually seek jobs, and would establish a right to refuse work paying less than the union wage. Variants of this aim have been quite succinctly detailed in declarations of principle by the UAW and the IUE.

This freezing tendency would not be damaging if GAW had a strong employment-stabilizing effect, or if workers laid off during slack seasons usually swam around in idle-labor pools anyway. We have already seen that guarantees cannot be expected to promote substantial further stabilization. And as for the idle-labor pool phenomenon, data covering certain postwar years suggest that for target industries this is seldom important. And these data are all the more cogent in that they reflect, among other things, several immobilizing factors—such as formal seniority rules—which were and will remain stronger than in prewar days.

Experience in the construction trades during 1950–52 deserves particular emphasis here since the building industry is widely held to stand high among the "idle-labor pool" areas in hard goods, and since the period was one marked by strong building activity—a factor that would

reinforce any tendency of seasonally laid-off workers to collect in pools waiting for construction itself to resume rather than change industries. In a paper presented to the Universities-National Bureau Committee for Economic Research Conference on Unemployment in 1953, David Kaplan of the Census Bureau showed that during this period, average monthly loss of employment status was high in relation to total employment—as would be expected in a field exhibiting sharp seasonals—but that of workers "not employed in construction the following month," less than one-fifth, on the average, had settled into idleness within the labor force. Over two-thirds found jobs in other fields, and the remainder retired from the labor force. In view of the over-all demand for labor in 1950–52, it seems reasonably certain that the withdrawals were due to desire not to work rather than to despair over lack of jobs and in part must have reflected the fact that some persons wanted only seasonal jobs. In the sense relevant here, mobility was doubtless higher still, including movement from one builder to another and rapid turnover of persons unemployed for brief periods.

As was said earlier, construction is not a GAW target industry. It seems highly probable that the idle-labor problem would be even less significant in the target manufacturing lines. In fact, there are some data in Kaplan's study suggesting that it might be almost inconsequential in many of these cases.

Ironically, it is possible that a guarantee might prove of value primarily in cases where seasonal irregularities in demand for labor were unavoidable and *employers* found the device necessary to insure adequate labor supplies to support long-term growth—in effect, suborning workers to stand by rather than take available work elsewhere. This was, in fact, so with Hormel—the classic example of successful resort to GAW. Being unable to smooth its seasonals more than moderately, the company found expansion efforts seriously impeded by its inability to hold enough workers through off-seasons: *The attached labor pool was too small!*

The odds are strong that so long as impediments to movement are not substantially greater than they appear to have been in recent years,

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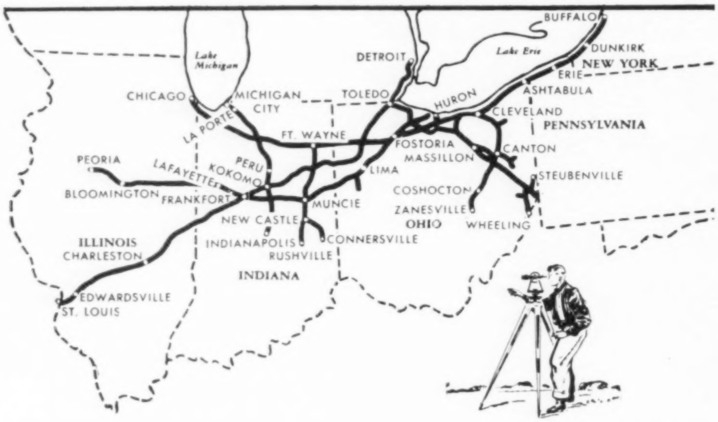

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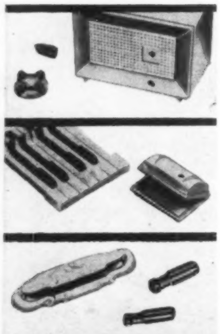

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serious problems due to inter-seasonal filling and draining of labor pools would seldom exist in a continuously prosperous non-GAW world. If so, GAW's tendency to freeze in idleness a large percentage of the people who now adjust to seasonal swings without great difficulty appears almost certain to outweigh any net reduction in the seasonal swings themselves that the device might induce. Judgments to the contrary probably stem from remembrance of the 30's, when unemployment was widespread. These were cyclical and not seasonal disturbances, and the distinction has to be kept in mind.

We may thus answer our third question as follows: In general, efforts to smooth seasonals via GAW seem undesirable. To the limited extent that they induce stabilization in specific lines, they may force destabilization elsewhere and freeze out people who want only seasonal work. In addition, they are almost certain to have rather serious adverse effects on the size and mix of total output within the year, immobilizing in idleness (or employing on a make-work basis) people who would otherwise do productive work.

Other Possibilities

The logical conclusion from all this seems to be that if full-scale guarantees were the only means available to deal with such genuine evils of seasonality as now exist, we should be well-advised merely to accept our present lot. It becomes then, somewhat anti-climactic to examine our fourth question—that is, whether better ways to achieve the same purposes cannot be found. However, seasonal fluctuations have enough real evils to warrant a pilot exploration of this subject.

From what has been said, it seems probable that the main problem is not elimination of idle-labor pools, but rather encouragement of desirable labor mobility and discouragement of undesirable mobility.

For the former, primary emphasis should be upon already-known but under-exploited measures designed to let workers know of employment opportunities and make it possible for them to act upon the knowledge. Major examples are improvement of employment exchanges, perhaps provision for travel allowances, and possibly loosening of some U.C. standards for benefit qualification.

If employers are to adopt "income-security" measures, plans providing for accumulation of funds to be given to the employee unconditionally on discharge, layoff, compulsory retirement, or voluntary separation seem much better than the GAW type here being considered. Unlike GAW payments, these benefits do not tend to freeze workers in idleness, and might help those laid off to finance relocation. The kind of set-up in question is well illustrated by the scheme negotiated by the United Glass and Ceramic Workers Union and the Libbey-Owens-Ford and Pittsburgh Plate Glass Companies in the Summer of 1955.

As for undesirable mobility—as from irregular operations—the situation is more complex. Occasionally GAW might prove to be *among* the proper instruments to employ in dealing with it. Even in such instances, however, it would have to be used in conjunction with other measures designed to neutralize its unfavorable effects. It is doubtful that the device, taken by itself, could yield *net* benefits very frequently. And in most cases the real need is for case-by-case measures to reduce job instability. Although dramatic improvement may be infrequent, some gain should usually be forthcoming.

In judging which measures to apply, each case must be dealt with on its merits and with due regard to secondary repercussions, but several techniques should prove helpful normally. Given union cooperation in arranging for interdepartmental shifts of workers and so on, the best one, as a rule, would be development of *new* lines that either are not seasonal or have seasonal patterns complementary to those of the lines already handled, with the objective of reducing swings to the point where they are no larger than needed to accommodate people seeking only seasonal work. Involving as it does innovation rather than mere reshuffling of schedules for the same products or entry into already well-populated fields, this approach is less likely to have unfavorable effects elsewhere than many other means of tempering seasonals in specific lines. Clearly, it is more likely to be pursued in the absence of guarantees since innovations are always risky and any layoffs that did occur would carry heavier penalties under GAW.

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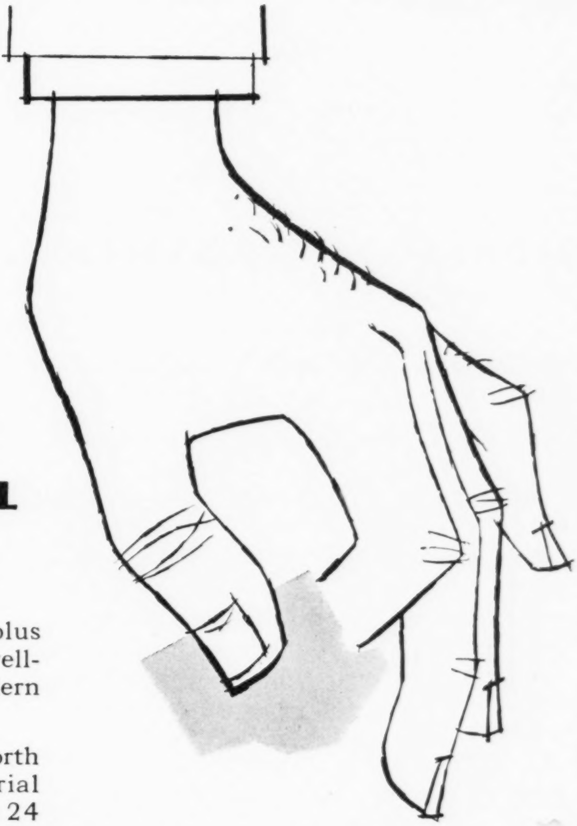

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YOU SELL MORE WHEN YOU SELL MANAGEMENT FIRST

Dun's Review and Modern Industry

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"MIDDLE" MANAGEMENT MEN

TALENT FINDS ITS LEVEL, but energy gives it movement, and vision a sense of direction. Not all men and women have the gift of leadership, but it's a wise man who knows the niche where he fits best, and it's a wise management that recognizes the level of responsibility where his skills are best employed.

Competition for leadership is inevitable, but it can be dangerous when it is a struggle merely for authority rather than responsibility. Mediocrity can often ride high under the drive of ambition, and occasionally gets to the top by sheer singlemindedness of purpose.

Everything must have a top and a bottom, and the middle is presumed to be a place of active movement, from which talent seeks its right level. Actually, some roads do not lead to the top. There are many able men of creative skills, of scientific bent, of philosophic perspective who have neither the gift of leadership nor the desire to assume it. These men serve in the middle management levels of industry. Often they are unselfish, and dedicated to the assignment of helping others get ahead, even at their own expense. Whether they stay in the second or third layers of authority may be a matter of personal choice, or of management decision based on a sensible appraisal of the individual and the circumstances.

What is more important is that top executives recognize the "middle" men in management and show the proper sense of appreciation for services rendered. Who is this man who lingers at the half- or three-quarters post while younger men pass him, many of them grateful in after years for coaching and guidance, a few of them callous and forgetful of the help freely given? He can be located in such diverse posts as department head, regional sales manager, accounting supervisor, credit executive, traffic manager. He may be the scientist, the chemist, the mathematician, or just the jack-of-all-trades who is given all the ornery assignments where tact, skill, and common sense are basic requirements. Often this indispensable person is a woman who has more management information at her fingertips than the president or the treasurer.

The years slip by, and the personality of the company and the individual merge in a common identity. Even the customers are aware of these key middle management people, and know how to pass routines and red tape by a letter or a phone call to them. Some eventually rub elbows with the brass and even give it a little extra polish; but others just carry on a day-long public relations job, internally and externally, without benefit of title.

There is some justification for sentiment when we think of these veterans on lower shelves of authority, but sometimes their services are taken for granted. They are treated like members of the family, especially members who never complain and are ignored because of this. Every company has these loyal servants who couldn't be top executives and have sense enough to know it, but they are responsive to praise, and equally sensitive, if quiet, in neglect. Prospects of a pension, insurance, and other retirement benefits are attractive, but they don't take the place of the word or gesture of understanding that says, "Thanks for all the things you do that can't be measured in coin or credits." It need not be considered patronizing or humiliating for the fellow who has gone ahead with a gentle push from the man back of him to pause occasionally and ask, "How are things, Jim?"

. . . And while any time you think of it is a good time, there's no better time than when you can add, "Merry Christmas and a Happy New Year!"

The Editors

W. D. Burnett, first vice president, Monolith Portland Cement Company

"Daily conference calls tie our widely scattered offices together"

"Co-ordination of sales and production is essential in selling cement," says W. D. Burnett, of Monolith Portland Cement Co. "And with plants and offices spread from Laramie to Los Angeles, the fastest way to coordinate is by telephone."

Key men meet daily on a 9:30 a.m. conference call. "Just like meeting around a table," according to Mr. Burnett, "but faster, far less expensive. Helps us produce at the lowest cost, ship from the nearest plant. Most of all, it makes for better teamwork."

The telephone can help your business operate more profitably, too. A telephone representative will gladly tell you how. Just call your Bell Telephone Company business office.

BELL TELEPHONE SYSTEM

Conference Telephone Rates Are Low

Here are some typical daytime rates:

	First 3 minutes	Each added minute
Three-way call: Los Angeles, Laramie and Denver	$4.00	75¢
Four-way call: Chicago, Milwaukee, Omaha and St. Louis .	$4.00	75¢
Five-way call: New York, Boston, Pittsburgh, Baltimore and Trenton, N. J. . .	$5.50	$1.00

Add the 10% federal excise tax.

Sohio's Clyde T. Foster tells how co-operative chemical and petroleum research means . . .

more miles for motorists

"The chemical industry has made remarkable progress during the past 25 years," states Clyde T. Foster, Sohio's president.

"And motorists have benefited greatly from this golden age in chemistry. The development of anti-knock compounds, new higher octane gasolines, de-icers, detergent oils, anti-freeze that will not evaporate, are but a few of the many improvements made possible by co-operative chemical and petroleum research.

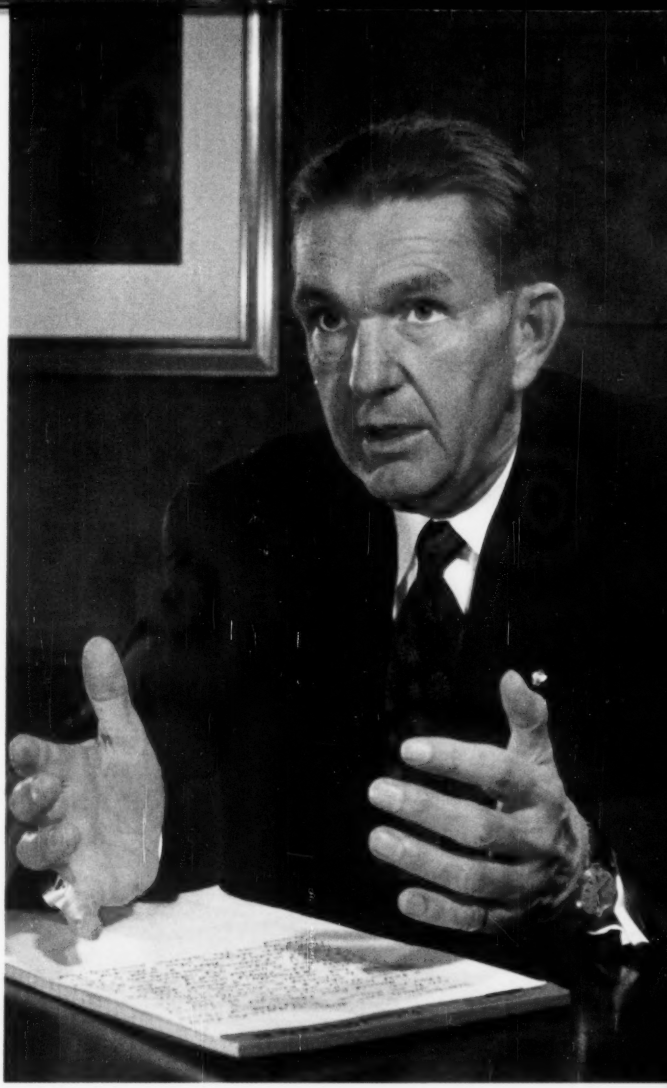
"Our own exclusive Sohio Boron Supreme motor fuel is a current example. Another is our Atlas Perma-Guard anti-freeze. These and other advances have resulted in better engine performance, longer car life, lower comparative costs, and more carefree miles for motorists.

"Today Sohio is in a better position than ever before to serve its many customers—thanks to all those who serve on the Sohio team, including our loyal suppliers like Wyandotte."

If you're looking for a capable source of chemical raw materials, why not try Wyandotte? *Wyandotte Chemicals Corp., Wyandotte, Mich. Offices in principal cities.*

Wyandotte CHEMICALS

Organics, Inorganics—World's largest manufacturer of specialized cleaning products for business and industry



1 **Clyde T. Foster, president of Sohio.** His company deals in petroleum from oil-well drilling to finished products. Wyandotte Chemicals serves the petroleum industry with ethylene glycol for anti-freeze, Carbose® for drilling muds, caustic for "sweetening," and soda ash for water conditioning, to name a few. Petroleum is one of many industries that look to Wyandotte for both technical assistance and on-time delivery of needed chemicals.

2 **"Ohio's most popular business-man,"** the friendly Sohio Dealer, sells only quality products, like Atlas Perma-Guard anti-freeze. His care of your cooling system helps protect your car. Wyandotte is one of Sohio's suppliers of ethylene glycol for anti-freeze.

3 **Sohio keeps** Ohio's automobiles rolling with a wide variety of products and services. Raw-material chemicals from Wyandotte are used to make such products for the petroleum and automotive industries as tires, hydraulic fluids, radiator cleaners, and many others.

4 **Wyandotte's** modern Glycol Plant. With these complete facilities and our fully equipped research center, we can help you solve many product or processing problems. If you have a chemical or processing problem, write us, giving as much detail as possible.